

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—Wash.

VOL. VI.

NO. 3, WASHINGTON-ST. ALBANY, N. Y. MARCH, 1839.

No. 1.

Conducted by J. BUEL, of Albany.

TERMS.—ONE DOLLAR per annum, to be paid in advance.

Subscriptions to commence with a volume.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Common School Libraries.

Are now attracting much of the public attention, and we begin to discover the want of suitable books, or a suitable collection of books, for these new establishments, adapted to the capacities and the business of our rural population; for it is generally conceded by intelligent men, that the two collections now offered, to wit, that got up, or recommended, by the American Society for the Diffusion of Useful Knowledge, and endorsed by the late Secretary of State,—and the one offered by the American Sabbath School Union, of Philadelphia, whatever intrinsic merits they may possess as literary or theological collections, are both of them glaringly deficient in what is most essential and most useful to an agricultural population. They contain little or nothing that is calculated to afford instruction, to the great business classes of the country, in their respective employments. The farmer and mechanic, and even the housewife, require professional books—books that will instruct them in their several employments—that will render their labors more enlightened, more pleasant, more profitable, more respectable—as much as the lawyer, the physician, or the clergy require professional books, to perfect them in their several vocations.

It is a well-known fact, that our system of farming is, in the main, wretchedly bad; that while many farmers get little more than a bare compensation for their labor, under a constant deterioration of soil, there are others, more enlightened, and who pursue a better system of husbandry, that derive an annual nett income of seven, fourteen, twenty-one, twenty-eight, and even thirty-five dollars, from every acre of land they cultivate. It is also well known, that our poorest farmers—not in means but in management—never buy, and seldom read, any publications that might teach them how to improve their practice.—But were such works placed in a common school library, at the expense of the state, the parents might, and the children would, read and profit by them.—There was more truth than poetry in the boast of the pedagogue, that he governed the village—because he governed Master Jacky, who controlled his mother, who influenced the father. Parents will listen to and respect the reasonable counsels of their children. Were books upon their future business of life placed in common school libraries, the young would read them, as matters of curiosity, if not of instruction—and their minds would become imbued with a mass of useful knowledge—and generally with the ability and disposition to profit by it, which could not fail of producing the best effects on society. Sow the seeds of usefulness in the spring-time of life, and they will germinate, they will grow, and they will give the increase. Teach the young to provide for themselves, and you qualify them to be useful to others. Neglect this first duty, and, so far as your agency extends, you consign them to indigence or to vice. We do not mean to trespass upon credulity when we state it as our belief, that were a good collection of works upon agriculture, the mechanic arts, and rural affairs, placed in every common school library in the country towns, this measure alone would, in ten years, double the product of our soil; and would elevate, in nearly a corresponding ratio, the industrial and moral character of our population.

We cannot omit, in our consideration of this subject, to contrast the wisdom of a sister state, with what we deem the short-sighted policy of our own. The legislators of a state hold the same relation to the population, that parents do to children. They

are presumed to be more wise, more provident, and to possess a stronger foresight, than those for whose benefit they act; and the legislator, or the parent, who, from the lack of moral courage, sacrifices the ulterior and substantial welfare of those entrusted to his care, to subserve selfish views, or to acquire temporary applause, abuses his trust, and mistakes alike his duty and his interest.

We have appropriated \$55,000 a year, of the public moneys, for one of the noblest objects that ever formed the basis of a legislative appropriation—the diffusion of useful knowledge—the knowledge that enables men to provide better for themselves, to improve their mental and moral powers, and to qualify them to be more useful in life;—to every family—to every individual—be he rich or poor, and be his occupation whatever it may—whether he reside in a splendid mansion or a log hut. Our legislators have virtually said, we recognize no distinctions in our republican family. We have made ample provision for them all, for becoming wise, wealthy and distinguished in life. But how have they carried out the plan of dispensing equally these munificent provisions? The mass of our population know as little what is best for their own interest, in regard to a selection for common school libraries, as would our children know what is best for their future welfare in life—because they have not had the opportunity, or the means, of acquiring that knowledge which would render them competent judges. Had the question been left to the ballot-box, the Erie and Champlain canals would never have been made. Their ulterior advantages to the state, could not have been scanned by superficial minds. Had the question been submitted to a popular vote, two millions of the public money would not probably have been appropriated to colleges and academies, for, we may say, the exclusive instruction of the learned and liberal professions—the unproductive classes of society—while the productive classes—the rank and file of our population, were left to their own unassisted exertions, to acquire fortune and fame, and to keep down the aristocratic influence of the thus privileged classes. Yet we do not complain of what has been done. We only complain of what has not been done—that the public bounty has not been extended alike to ALL—to the producing as well as to the non-producing classes. We should take care, that while we are rearing the splendid column, and embellishing it with architectural beauty, we do not neglect the foundation upon which rests the entire structure. But to return from this digression—

How have we carried out this munificent grant, made for the benefit of our people—our whole people?

We have left the expenditure of this money to the trustees of common schools—many of whom cannot probably even read—and forty-nine out of fifty of whom—we speak it without disparagement to their integrity or respectability—our legislators would not entrust to purchase a library for themselves. We have put the public money into their hands, leaving it to their wisdom or their weakness, to decide, whether they shall lay it out in wholesome food or in poison—in useful knowledge or in useless trash—in romance and novels, which vitiate the taste, and unsettle the business habits of life—in the biography of the conquerors of the world, and in the history of foreign lands, with which we have little intercourse, and from which we can learn little that is useful, in arts, in commerce, in politics, or in morals—or in works of substantial utility to our business, our improvement and our happiness.

But suppose these school trustees are all competent to make good selections—that they are all men of sound intelligent minds, acquainted with literature and science, and with modern improvements in the arts of productive labor—let us for a moment look to the economy of the matter. An edition of ten thousand copies of any book—and ten thousand is the number of our school districts—can be had for one-half, or less, of the retail price of the same work from a book-store. So that ten dollars expended in this way, by the state, would have gone as far in purchasing books, as twenty dollars expended by the trustees in a village or city book-store.

But there is still another difficulty. Suitable books cannot be obtained except in the larger cities, even at this sacrifice. Thus the trustees must either incur the additional expense of procuring them from thence—of foregoing their share of the public bounty—or, sad alternative! of buying such as are not

adapted to their wants—perhaps refuse stock, got up, like Pindar's razors, to sell! and as illy adapted as Pindar's razors for the purpose for which they are wanted.

One word as to the utility of books on agriculture and rural economy to all classes of society. Is there an individual to whom the perusal of such books may not be useful? Is there a branch of knowledge so generally beneficial to the state as this?—one more susceptible of improvement, or that exerts a more salutary influence upon the habits and morals of our population? To study agriculture, is to study the laws of nature, and their application to the wants and convenience of man.

Let us now turn to our sister Massachusetts.—With the same benevolent design of diffusing useful information among her whole population, that we have manifested, she has made provision for establishing common school libraries. But instead of leaving the selection to trustees, a great many of whom at least must be incompetent to the task, she has chosen some of her most worthy and distinguished citizens to form a board of education; and has added another, perhaps no less distinguished, as the efficient secretary of the board—to this board she has confided the all important charge of providing common school libraries. She means to put in the hands of her children good books, for their instruction and improvement, and on the lowest terms; and to be certain that the books shall be both good and cheap, she selects them herself, as every prudent parent will do, and gets them at wholesale prices.

To carry out the views of the legislature, the board of education in Massachusetts are now employed in making up a common school library, to be principally composed of books expressly written for the purpose, and adapted to the capacities, the wants and the improvements of her whole population. And the more effectually to accomplish this end, the board has enlisted the services of the most talented men of our country—and even of ladies—for ladies may do much to improve household economy, and to give a polish and charm to rural life. Among the writers who have engaged in this work of usefulness, we find the names of distinguished individuals of this state, and of other states of the Union. The library is to consist of one hundred volumes, one-half adapted to the senior and the other half to the junior branch of schools. It is to embrace matters in the various departments of knowledge, so as to improve the condition of all; and no volume is to be accepted until it is approved by each individual member of the board.

Comparisons, says the adage, are always invidious; and they are so when introduced for mischievous purposes; but they are certainly commendable when they are made to show us our faults, and to teach us how to correct them. Although it is not fair to draw conclusions before results have developed, we can hardly mistake the tendency of the two modes of proceeding which we have contrasted, nor hesitate in giving a decided preference to the policy which has been adopted in our sister state.

Our Country—our whole Country.

There is no one business of life which so highly conduces to national prosperity and independence, and to general and individual happiness, as the cultivation of the soil. Agriculture may be regarded, says the great Sully, as the breasts from which the state derives its support and nourishment. Agriculture is truly our nursing mother, which nurtures, and gives growth, and wealth, and moral health, and character, to our country. It may be considered the great wheel which moves all the machinery of society; and that whatever gives to this a new impulse or energy, communicates a corresponding impetus to the thousand minor wheels of interest which it propels and regulates. Providence seems wisely to have ordained, that because this is the most necessary employment towards the subsistence and comfort of the human family, its labors shall receive the highest and most substantial reward. While the other classes of society are directly dependant upon agriculture, for a regular and sufficient supply of the means of subsistence, the agriculturist is enabled to supply all the absolute wants of life from his own labors; though he derives most of his pleasures and profits from an interchange of the products of labor with the other classes of society. Agriculture has been called the parent of

arts, not only because it was the first art practised by man, but because the other arts are its legitimate offspring, and cannot continue long to exist without it. It is the great business of civilized life, and gives employment to a vast majority of almost every people.

The substantial prosperity of a country is always in the ratio of its agricultural industry and wealth. Commerce and manufactures may give temporary consequence to a state; but these are always a precarious dependence. Venice, Genoa, Portugal, Spain, &c., each in turn rose to wealth and power from commercial enterprise. But they all now exhibit melancholy evidences of fallen greatness.—Their population degenerated under the corrupting influence of commercial wealth, and having no suitable agricultural basis to rest upon, they have fallen in succession, from their high standing, victims to the more robust energies of rival powers, or to the enervating influence of domestic cabals. They exhibit nothing now, in their political or social institutions,—in their agriculture or the condition of their population,—that can be admired or coveted, by the freemen of America. Great Britain has now become ascendant in commerce and manufactures; yet her greatness in these sources of power and opulence, are primarily and principally owing to the excellent state of her agriculture,—without which she could not probably sustain her manufactures or her commerce, in their present flourishing state, or long retain her immense foreign possessions, or any thing like her present population. Only one third of her population are said to be employed in agriculture; yet the labors of this one third, such is the high condition of her husbandry, suffice to feed themselves and the other two thirds. Five millions of agricultural population, of all ages, produce annually, from her limited soil, seven hundred millions dollars worth of agricultural produce, averaging about one hundred and forty dollars to each man, woman and child. The recently published letters of Dr. Humphreys, are so conclusive, and instructive, upon this subject, not only in regard to the importance of agriculture to a nation, but as showing the susceptibility of this art of high improvement and great productiveness, that we subjoin below an extract from one of his letters.

"It is the opinion of competent judges, that the advances made in the agriculture of Great Britain, during the last seventy or eighty years, are scarcely exceeded by the improvement and extension of its manufactures, within the same period; and that to these advances, no other old settled country furnishes any parallel. That they have been very rapid indeed, the following figures and comparisons abundantly show: In 1760, the total growth of all kinds of grain in England and Wales, was about 120,000,000 bushels. To this should be added, perhaps, 50,000,000 for Scotland—making a great total of 170,000,000. In 1835, the quantity in both kingdoms could not have been less than 340,000,000 bushels. In 1755, the population of the whole island did not much, if any, exceed 7,600,000. In 1831, it had risen to 16,525,180, being an increase of 9,000,000, or 120 per cent! Now, the improvements in agriculture have more than kept pace with this prodigious increase of demand for its various productions; for it is agreed on all hands, that the 16,500,000, or rather the 17,500,000, (for more than a million has been added since 1831,) are much fuller fed, and on provisions of a far better quality, than the 7,500,000 were, in 1755. Nor is Great Britain indebted at all, at present, to foreign markets for her supplies. Since 1832, she has imported no grain worth mentioning; and till within the last six months, prices have been so exceedingly depressed, as to call forth loud complaints from the whole agricultural interest of the country. England is, at this moment, so far from wanting any of our bread-stuffs, if we had them to export, that she has been supplying us liberally all winter from her own granaries; and, according to the latest advices, she had still bread enough, and to spare. Again, it is estimated by British writers, of high authority, that the subsistence of 9,000,000 people costs, in raw produce, no less than £72,000,000, or £8 per each individual, per annum. According to this estimate, the annual product of this great branch of national industry is \$350,000,000 more at present, than it was in 1755; which is more than twice the value of the whole cotton manufacture of the country, in 1831. Now if it costs \$350,000,000 to feed the increased population of 9,000,000, then to feed the present population of 17,500,000, must cost near \$700,000,000! What an amazing agricultural product for so small a territory! And yet it is the opinion of practical men of the highest respectability in England, that the raw produce of the island, might be well nigh doubled, without any greater proportional expense being incurred in its production; that is to say, 25,000,000 people might draw their subsistence from one little speck in the ocean! Now we have a territory more than fifteen times as large as the island of Great Britain; and what should hinder it, when it comes to be brought under no higher cultivation than some parts of England and Scotland, from sustaining a population of 500 or 600 millions of people? This would give to Virginia something like thirty millions; to Illinois and Missouri about the same number each; to New-York

near twenty-five millions, and so on in proportion to the other states, I am quite aware that this estimate will be regarded as extremely visionary and incredible, by many of your readers; but not more so than it would have been thought in the middle of the last century, that England, Scotland and Wales, could ever be made to sustain thirty-five or even thirty millions."

A city may flourish by foreign commerce—by becoming the carrier of other nations—till foreign aggression, or foreign rivalry, or the opening of new channels of commerce—contingencies of no unfrequent occurrence, shall blast its prospects, and consign it, like Persepolis, Petra, Tyre, and other ancient cities of the east, to ruin and oblivion.

A town or district, may flourish by manufacturing industry, as many have done in ancient and in modern times, as long as it can exchange its merchandise for the means of subsistence and of acquiring wealth; but if its dependence for these is upon foreign lands, its prosperity is unstable—the interchange is liable to be interrupted by wars, rivalships and other contingencies.

A country can be long prosperous, and truly independent, only when it is sustained by agricultural intelligence and agricultural industry. Its foreign commerce may be swept from the ocean; its manufactures may perish; yet still, if its soil is tilled, and well tilled, it can be made to yield all the absolute necessities of life;—it can, when misfortunes abate, like the roots of the trunkless tree, send forth a new stem, new branches, new foliage and new fruit; it can rear again the edifice of the manufacturer, and spread again the sails of commerce—and it will yet retain the germ and the spirit of independence.

The preceding facts will serve to show the importance of agriculture to a nation, in sustaining its prosperity, and its independence, and in supplying the wants, and multiplying the comforts of its population. The same reasoning that applies to nations, applies to states, to counties, to towns and to neighborhoods. Agriculture constitutes the basis of their prosperity, directly or remotely; and the blessings which it confers are always in the ratio of the intelligence, skill and industry which direct and control its operations. Take a town, for instance, which has a mixed population of the various classes of society. If the average produce of each acre of land is but ten dollars, it is sufficient, merely, to cover expenses and to feed the farmer's family. Having nothing to sell, the farmer of course cannot buy; or, if he buys, he cannot pay, the merchant, the manufacturer or the mechanic, nor can he support the lawyer, the physician, the school-master, or the clergyman. But if every acre is made to produce thirty dollars worth of produce annually, which most lands, properly managed, are capable of doing, the twenty dollars, or two-thirds of the whole product of the soil, become virtually a circulating medium. It is so much surplus wealth, created by the agricultural labor of the town. Now let us suppose, further, that the lands in the town amount to twenty thousand acres. Under the reckless system of management, which too generally prevails, and which upon the average does not produce over ten dollars an acre, in old improved lands, the product would be barely sufficient to maintain the agricultural population, without adding to their wealth, or enabling them to buy of the merchant or others, the necessities and comforts which they stand in need of. I am aware that this does not hold good in practice; for even the most shiftless farmers do buy; but if they pay, it is at the expense of many of the substantial comforts of life, or perhaps ultimately of their farms, which they might continue to enjoy under a more enlightened system of management. But under the improved system, which we have not graduated high, at thirty dollars per acre, and which is under the average product of well cultivated lands, both in Europe and America, the aggregate agricultural labor of the town, would give an annual increase to its wealth of four hundred thousand dollars. Is there an intelligent, reflecting man, who cannot see and appreciate the advantages to society—to the state and to the nation, of a high state of improvement in our agriculture? Is there one who does not see his personal interests promoted by this certain and constant influx of wealth, drawn from the soil—prolific in the bounties and blessings of a wise and beneficent Creator? He has spread every where the means of making man wise and happy. He has given him the capacity to apply these means to his own good. He has commanded him to bring his capacities into constant and active exercise; and He has promised to reward, and He will reward, all who prove faithful to the command.

I do not aim to disparage the other great branches of national industry, which are prolific sources of wealth and happiness, by praising agriculture; but I think the importance of this great business to

the state, has not been duly appreciated, nor its interests sufficiently regarded and promoted by those who have had the management of our state affairs. My object is merely to make agriculture the base, as it ought to be, of the social superstructure. We are so prone to look up for blessings, to what are termed the higher walks of life, and to expect them to fall upon us without an effort, that it becomes necessary, sometimes, to point to their legitimate sources below, in the soil. Agriculture, manufactures and commerce are all important, in a public point of view, in the order in which we have named them; and, like the human body and its members, are reciprocal aids to each other. The agriculturist gathers from the soil the elements of usefulness; the manufacturer fits them to our wants; and the merchant becomes the factor of both, and the medium of interchange.

It is but just, in the mean time, to suggest some of the important bearings which our manufactures have upon the prosperity and independence of our country. These consume the surplus products of the soil; they convert into useful fabrics the wool, the hemp, the flax, and much of the cotton, of the farmer and the planter; and they supply to the great agricultural mass of population, articles of necessity and convenience, at a cheaper rate than the farmer could fabricate them for himself. *The manufacturers of our country consume more of the surplus provisions of our soil, than all Europe, Asia and Africa, put together.* I know it is said, that we can get our wearing apparel from Europe, had we no protecting duties, cheaper than we can manufacture it ourselves. And this is undoubtedly true, as regards many articles we use. But what would be the consequence? What was the consequence in 1836, when we were flooded with foreign goods, without the means of paying for them? Our manufacturers became embarrassed; many of the mills were stopped, and a general stagnation of all business ensued. Had the causes which produced that state of things, continued to operate, a complete prostration of our manufacturing energies must have ensued, and the manufacturer been obliged to seek his employment, and his bread, among the agricultural class: the home market for the surplus products of our soil would have been cut off, and the stimuli to industry and enterprise every where paralyzed. Europe does not want, and will not buy, our agricultural products. She sells to us bread stuffs. Ours must find a home market, or no market at all.

But there is another consideration which claims for us an interest in our manufactures. Why are manufactured goods cheaper in Europe, than they are in America? Not because our workmen are less expert, or our machinery less perfect. The difference lies in the social condition of the workmen of the two countries—in the price of labor. So depressed is the condition of the operatives in Europe, that they are compelled to work for a bare living. They enjoy but few political rights. There, the many toil to support the few, in luxury and extravagance. Here the case is different. Our citizens enjoy equal rights, and the spirit of our institutions demands that they should be so rewarded for their labor, as to be able to assert and maintain their rights. Depress them by poverty and want, to the condition of the operatives in European workshops, and you degrade them as men, and render them dangerous as freemen.

The interests of the different classes of society, in our country, are so intimately interwoven, that it may be assumed, as a truth, that each class, and each individual, best subserve their own good, when they endeavor to promote the welfare of all, of every other class and individual. It comes then to this, if our views of the matter are correct, that agriculture, being the great conservative principle of national prosperity, independence and character, should be primarily supported—should be encouraged, enlightened and honored;—that our manufactures, being necessary, like the elaborating organs of the plant, to convert to convenient and useful purposes the products of agriculture, should hold the second rank in our regards—as a branch of national industry, which cannot be dispensed with, without manifest injury to the other classes of society, and without periling our independence as a nation;—and that agriculture and manufactures being duly cherished, commerce, as a necessary medium of interchange between the two great branches of national industry, and between them and foreign nations, will as certainly prosper and flourish as the tree in a rich soil will, which is braced and supported by a good system of roots below, and by a healthy top and foliage above. Let us then improve our agriculture, and foster and protect our manufactures—that our commerce may enlarge its boundaries, and multiply its gains. Then may we, in the spirit of our motto—exclaim—OUR COUNTRY—OUR WHOLE COUNTRY.

Root Culture.

I.—THE POTATO.

Every farmer cultivates the potato, but few farmers cultivate it as profitably as they might. The average crop does not probably exceed one hundred bushels an acre. It may be made to exceed three hundred bushels the acre, and without increasing, materially, the expense of culture. It is a reproach to us, that this root is brought three thousand miles—from England, Ireland and Germany, to supply the wants of our city population. Let us try to do better. It is in the hope that we may contribute to increase our average product, so as to supply the demands of our market, that we give the following directions for its culture.

Soil and preparation.—A mistaken notion prevails with many, that the best potatoes are grown on a warm sandy soil. The reverse of this is true. The best potatoes, as to quality, are believed to be grown in the west of England, Ireland, Nova Scotia, Maine, and other high latitudes, and particularly in humid climates. In a dry season, the quality and quantity are inferior with us, to what they are in a moist and cool one. The potato zone does not extend south of New-York—that is, its quality deteriorates south of that latitude; and it probably has the most congenial climate between 42° and 45°. If these assumptions are well founded, then it should be our aim to plant upon a cool and moist, though not wet soil, which approximates nearest to the temperature of the best potato-growing districts elsewhere. The potato will grow anywhere, if there is vegetable matter and moisture, but it will be inferior upon dry sands and stiff or wet clays. It does best in loams, or reclaimed swamps; and it pays well for a good dressing of long manure, and should, if practicable, be planted on the first furrow of a grass ley. If the sod is old and tough, plough deep in September, having first spread the manure, if to be had at the time; but if the ley is one of clover, of one or two years old, the ploughing may be postponed till spring. If ploughed in September, without manure, this may be spread upon the ground just before planting, and buried with a light furrow so as not to turn up the vegetable matter of the sod. In our practice of always sowing clover with small grains, we seldom fail of having a tolerable grass ley for the corn and potatoes which are to follow; and its value to the crop doubly compensates for the cost of the clover seed. The potato has a system of roots which strike deep, if the soil will permit, to collect food for the plant. A decomposing sod, with the manure which should accompany it, turned with a deep furrow, affords the best aliment for the plant, and is deposited where the roots naturally seek it, and where it remains cool and moist. The stolens have a different office to perform. They require more air and heat, shoot horizontally, and if buried deep in culture by the plough will protrude a new set near the surface. So that a rich deep soil, having a good sod and a mellow surface, is best adapted to this plant. Harrow thoroughly before planting.

Manures.—The value of manures to the potato crop was illustrated in the preliminary remarks in our last number; and indeed a large crop is seldom obtained without this auxiliary. Long or unfertilized manure is preferable to that which is rotten. And remember, this manure does not become more impaired in value for the crop which is to follow the potatoes, than if it were summer-yarded. We prefer applying it broad-cast, with an unsparing hand, previous to the last ploughing; and we approve of Mr. French's practice, of sowing plaster upon the manure, instead of afterwards applying it to the growing plants.

Seed.—A thousand and one experiments have been made, and with various results, to determine the relative value of large, medium or small seed—of cut or whole tubers. We think the majority of these experiments is in favor of medium, or a little more than medium sized roots, for seed, cut into sets of two or three eyes. On the principle that like produces like, such a seed will produce a crop of the most desirable size for the table. Each eye forms a distinct plant, like a kernel of corn, and the size of the tuber, and not of the set which is taken from it, will give character to the product. If the variety has a dwarf habit of growth, more sets may be put in a hill, or they may be planted nearer in the drill, than where the growth is tall, or where the tops send out many lateral shoots. Rich ground will also sustain a greater number of plants than poor ground. The Rohan, and we are told also the forty-fold, require thin planting. The object should be to give the plants a good pasture, and not to have the tops so thick as to exclude the solar rays from the soil.

To produce early potatoes, or to bring a crop to early maturity, it is advised to gather the seed before it has attained maturity, to expose it some

days to the influence of the sun, and to select the top ends for the earlier crop. We have a strong illustration of the correctness of these conclusions, in Loudon's Gardeners' Magazine. A correspondent of that journal made the following experiment: He dug every other row of a potato patch for seed while the vines were fresh, and exposed them in the sun until they had become green. In February, he cut them crosswise, leaving the bottom and top in separate sets. He cut those which had been suffered to ripen in a similar manner, and planted the four kinds in alternate rows. They were all planted on stable litter, and covered with about three inches of earth. A part of each kind received no subsequent earthing. We give the result in the writer's own words.

"The early potatoes not earthed up, grew close around the stock or stem, like eggs in a nest, and so near the ground that they might be picked off with the finger, leaving the stock or stem uninjured, to produce more potatoes from the runners. From the eye sets of the unripe tubers, we had a supply every day for a fortnight; when those of the bottom sets came into use for another fortnight; at that time potatoes from the eye or top sets from the ripe seed came into use, and were succeeded by potatoes from the bottom sets of the ripe seed.—Those kept for seed, or the table, were earthed up as usual, and each row produced almost as large a crop as any two rows not earthed up—the luxury of an early potato being a greater object than the quantity."

Choice of sorts.—There is a difference of nearly one-half in the nutritious or fattening properties of different varieties of the potato. Those which are best for table are best for market, and best for farm stock, though their yield is generally less than that of the coarser varieties. Those in the highest esteem are the Pink-eyes, Mercers, Sault St. Marie, St Helena; and almost every district has its other favorites. The Rohan, we think, will ultimately obtain the ascendancy, on account of economy in seed, its yield, and its intrinsic merits.

Mode of planting.—Three modes are practised; in hills and in drills, as a distinctive crop, and in alternate double or threble rows with Indian corn. The propriety of planting in hills or drills depends upon the condition of the soil; if it has been thoroughly subdued by the plough, drills are to be preferred, as they are cultivated with the least expense and generally give the largest product, though they in general demand the most labor in gathering the crop. The practice of raising potatoes with corn, by alternating two or three rows of each, has been eminently successful, where it has been conducted with spirit: the product of the mixed crop has been greater than where each has had a separate department of the field. We omit to notice the Irish mode of planting in beds, as involving an economy in land which we do not require, and an expenditure of labor which we cannot afford. The seed should not be buried more than three or four inches—and the covering should be least in wet ground.

Culture.—The culture of the potato, to be profitable, should be almost wholly performed with the plough, cultivator and harrow—little other labor being required with the hand hoe, than may be barely sufficient to destroy the weeds which these implements do not reach. In the first place, the seed may be covered with the plough, whether in hills or in drills. In the next place, the harrow should be used, before the plants are above ground, to reduce the ridges made by the plough in planting, to pulverize the surface, and to destroy the young weeds. In the third place, the cultivator, or the plough, turning a superficial furrow from the plants, may be introduced, when they are not more than six inches above the surface. In the fourth place, the plough may be used to turn a light furrow to the plants so as to give their stems an earthing of three or four inches; but the plough should run twice nearly in the same track, that the ridges upon which the crop grows may be rather flat and broad than pointed—rather concave than convex—calculated rather to retain, than to throw off water. Here the hand hoe may be of use in gathering around the stems a portion of the earth raised by the plough, in destroying weeds among the plants, and in perfecting the earthing or hilling process; for the crop should receive no further earthing after the plants are in blossom, when the stolens have shot forth, and the tubers began to form. Earthing after this time causes a new set of stolens near the surface, and a growth of a new set of tubers, which in a measure rob the original ones of their food. We have seen, by the experiments quoted, in raising early potatoes, that the natural place for throwing out stolens, or roots which produce the tubers, is the point of the stem which first comes to the light and atmosphere; that if this point is covered in due time with two or three inches of mould, stolens are protruded into it, which produce the potato; but that if this earth is wanting, the stolens cannot protrude, but that the potatoes grow at the surface,

around the stem. After the earthing process described, no further care is required, than to destroy weeds, which may be done with the hoe, or, if long omitted, by the hand.

In harvesting the crop, although we have made much progress in improvement, much remains to be done. The hoe, the dung-fork, the spade, the potato hook, and the plough, followed by the harrow, have each their several advocates. From our experience, we should choose the last first, and the first last, where the crop is in drills; and we should prefer the hook where it is in hills. With the potato hook, when the crop has been in hills, we have thrown out 14 bushels of pink-eyes in an hour, and 27 bushels of the Rohan, though in neither case, did we gather the potatoes—but in both cases, the digging process was thoroughly done. Lawson & Son's potato lifter, figured and described in the August number of our last volume, very much on the model of one before introduced by Capt. Joab Center, seems to be calculated to abridge the harvest labor of this crop. But of this we hope to be able to speak more understandingly another year.

Sorting the crop.—This is an economical process, though little attended to, and may be more profitably done before the crop is housed, or pitted, than afterwards. There is a portion of the crop, often a fourth or a third, which is small, and unfit for the table, for market, or for seed, but which is as good as the large size for farm stock, and which can be economically used for this purpose, in fattening hogs and beef cattle, in autumn and winter. If they are separated at the harvest, they are always in readiness; if not, the sorting is tedious, or is neglected, and the small potatoes are the last that remain, either for the table or for seed. With us the work is a trifling affair. We have a wire sieve, or riddle, the meshes of which are of a size to admit those of a given size, appropriated to swine or cattle, to pass through. As the crop is brought home, a peck is thrown into this riddle, and by shaking it half a minute, the sorting is completed.

Wintering the crop.—The best mode of preserving potatoes in perfection through the winter, is to bury them in shallow pits, in a dry and porous soil—a side hill is the best—where they will be free from water, and to cover them first with straw, and then with earth, and if convenient, coarse manure over the earth, so that they shall be secure from frost. When put in pit or cellar, they should be dry, that is, free from external moisture. Potatoes put into the cellar should be kept as cool as possible without freezing, and air should be excluded by a light covering of mould or sand. A dry warm atmosphere will speedily impair their good properties.

In using potatoes, they are improved by boiling, especially for pigs. The potato belongs to a family of poisonous plants, the *solanum*; the boiling or steaming of which is believed to expel the deleterious, and to improve its nutritious properties. To neat cattle and horses they may be fed raw with manifest advantage. In cooking them for the table, it is preferable to do it by steam. The mode of doing it is simple. Get a piece of sheet iron of the size of the bilge of your pot or kettle, perforate it with half inch holes, then clip off two parallel sides so as to admit it into the mouth of the vessel; put it in; put some water under, and some potatoes over, this perforated iron; and when the water boils, the potatoes will be steamed and prepared for the table; or, if to be boiled, put them in the vessel while the water is cold, that they may heat through as the temperature of the liquid increases—that the inside may cook as well as the outside—and when they are near being done, turn off the water, remove the cover, and leave them to dry over a moderate heat.

We will close this article, already longer than we intended it should be, by giving the culture, expense, product and estimated profit, of two crops raised by ourselves, in different years, upon the Albany barrens, the soil a sand loam.

Culture.—The field was in clover. We applied twenty-five loads of long manure, in May, to an acre, and dropped it at suitable distances for spreading; marked out two lands of equal breadth, twenty feet; and having the seed prepared, proceeded to planting, which occupied three men, a boy and team three half days. One man took charge of the team; a second raked the manure into the furrow, and trod it down as he went on; and a third spread the manure, and with the boy dropped the seed. The rake followed the first furrow, and the manure from two and a half feet surface was drawn into it, and the sets, or seed, dropped at eight inches distance on the manure. The plough followed and turned three furrows, or made three bouts. In the mean time the manure and seed were deposited in the first furrow of the second land, to which the plough followed, and in this way they alternated till the planting was completed. The ground was then rolled, harrowed as the plants began to break the surface, and subse-

quently ploughed between the rows, and hand hoed once. About half the field was a dry sand knoll, which suffered severely from drought; and the crop here was but a little more than fifty per cent of the other half. The product was ascertained by the agricultural committee, and the product stated embraced the average of the entire acre.

EXPENSE OF EXPERIMENT I.

Man and team 1½ days, ploughing in seed,.....	\$2 00
Two men and boy planting same,.....	2 00
25 loads manure, at 75 cents,.....	18 75
25 bushels seed, at 50 cents,.....	12 50
Rolling, harrowing and ploughing,.....	1 00
Hand hoeing once,.....	1 50
15 days taking up crop, (a long time,).....	11 25
Rent,.....	5 00
	\$54 00

PRODUCT.

359 bushels large potatoes, at 50 cents,....	\$179 50
71 do small, at 12½ cents,.....	8 88
	\$188 38
Deduct charges,.....	54 00

Nett profits in experiment I,.....	\$134 62
At 2½ a bushel the nett profit would have been....	\$45 25

EXPERIMENT II.

Culture.—This crop had been preceded by wheat. It had 25 loads of long manure, spread and ploughed in. The ground was then harrowed, furrowed or listed with two and a half feet intervals, the seed dropped at eight inches, covered with a plough, a furrow on each side, and the ridgelets rolled. The after culture consisted of two horse and hand hoeings. The crop was harvested with the plough and potato hooks. The product was determined by the agricultural committee.

EXPENSE.

One ploughing,.....	\$2 00
25 loads manure, at 75 cents,.....	18 75
25 bushels seed, at 50 cents,.....	12 50
Harrowing, furrowing, rolling and horse hoeing,...	3 00
Planting and covering, 3 days,.....	2 25
Hand hoeing, 2 days,.....	1 50
Taking up crop,.....	9 00
Rent,.....	5 00
	\$53 90

PRODUCT.

383 bush. merchantable potatoes, at 50 cts. \$191 50	
77 do small do. at 12½ cents,.....	9 62½
	\$201 12½
Deduct charges,.....	53 90

Nett profits,.....	\$147 22½
At 25 cents per bushel, the profit would have been about.....	\$52 00

In these estimates, the whole manure is charged to the crops. Deducting one-half, as is customary, the profits would have been \$9.37½ more in each experiment.

Maple Sugar.

We often neglect to profit by things within our reach, and are constant in our eagerness to grasp those which are remote and doubtful. This is particularly the case in regard to our sugar giving maple. We have perhaps enough of this species of tree in our state, to furnish our whole population with sugar, were the business properly husbanded; and if not enough, they might be sufficiently multiplied in time to serve the next generation. The sugar which this tree yields is as good, or may be made as good, as that which comes to us from Louisiana, or the West Indies, and by simple means, available to every sugar boiler—the means which give to sugar the character of white Havana.

As there is much of this article badly manufactured,—and as its value may readily be doubled, and its quantity greatly increased—to aid in these desirable ends, we shall here state the whole process of manufacture, as given to us by a gentleman long practised in the business, and who makes three thousand pounds a year, equal, he says, to any that can be produced from the cane or beet.

He first procures sap buckets equal to the number of trees he intends to tap, which are of course always kept in a cleanly condition. These are perforated with a hole near the upper part of a stave, large enough to admit freely the head of a large nail, upon which they are to be hung, and which nail is to be firmly driven into the tree, near where it is to be tapped, and which may be at any height within reach. The tree is bored, the quill or tube to conduct the sap into the bucket inserted, and the bucket hung upon the nail, and in contact with the tree, to catch the sap. This completes the first process. The second is to gather the sap to the boiling house. To do this in a cleanly manner, butts or large casks are placed upon a sled, with coarse linen strainers tied over the tops, leaving the centre of the strainers to sag so far into the casks as to form a basin large enough to hold a pailful of sap.—This sled is drawn through the sap orchard, the sap gathered and turned upon the strainer, and then deposited in the sap reservoir, near the boiling pans. The strainers keep the sap in the casks, and keep

leaves and other foreign matters out of them. This completes the second process. The third is the boiling process. For this purpose, broad sheet iron pans are employed, not more than twelve inches deep, both because they give the greatest surface to the fire, and the greatest to the air, and consequently accelerate most the evaporating process. The sap reservoir, or cistern, is placed so high, that tubes from it conduct the sap directly into the pans, so that when the boiling is started, these are opened, and the pans receive a constant and regular supply. The fourth process, that of clarifying the syrup, and the fifth, sugaring off, we did not particularly learn, and inferred that there was nothing particularly in them differing from the common modes of practice.

The next and last process, claying, is the most important. To perform this, a bored log, resembling a pump log, is placed nearly horizontal, one end inclining towards a tub or barrel, to catch the molasses; holes are made on the upper side of the log, and to the centre bore, to admit moulds, of the shape of a sugar loaf, the lower or smaller ends of which being temporarily stopped, the sugar, after it has granulated, is put into the moulds, the latter set in the bored log, and a coat of the best Amboy clay, reduced to a paste, is then spread over the sugar, in each mould, to the thickness of an inch or more, and the plugs drawn from the bottom of the moulds. The water in the clay percolates through the sugar, carrying with it the colouring matter and molasses, falls into the bored log, and passes off into the tub or cask. If the first claying does not suffice to render the sugar sufficiently white, when it becomes dry it is taken off, and a second is applied, when the process is completed.

This is the mode of producing clayed sugar in Cuba, where the clay is sometimes thrice repeated; and it seems to be the mode now adopted in France with beet sugar; and a recent improvement consists in refining it without removing it from the moulds, by the aid of heat and pressure.

We have obtained from the gentleman, whose process of making sugar we have been describing, the following description of his

SAP BOILERS AND MODE OF SETTING THEM.

The best vessel to boil sap in, to reduce the same to syrup, is made of Russia sheet iron; and its size may be in proportion to the quantity to be boiled. The sap of a thousand trees may be easily evaporated in an apparatus such as I will describe.

Make of Russia sheet iron, a pan about six feet long and four feet wide, with sides at right angles, of the same material—six inches high. Also another pan of the same material and construction, but ten feet long and four feet wide.

Erect an arch of free stone or brick, with grates to lay the wood upon, and a good iron door to give a draught, so that the air passing into the arch shall be heated before it touches the bottom of the pan. The plan of the distillery arch will give the idea perfectly, but this is not near as expensive. Set the small pan nearest to the mouth of the arch—say within two feet of it. Let the sides of the pan rest on the sides of the arch about four inches, and at the ends and middle let it rest on three good bars of iron, to prevent its sagging. Let these bars be chamfered on the front edge, so as not to catch the wood as it is carelessly thrown into the arch, and let them be long enough so as to protrude over the arch on both sides, and be bent over at the ends, so as to prevent the arch from spreading, and the bars from sagging when heated.

At the farther extremity of the arch set the larger pan, as you have set the smaller one, only let the arch be raised about six inches higher, so that the bottom of the larger pan may be a little higher than the top of the smaller. Set this pan a little dipping towards the smaller, and in the lower end, and close to the boiler, insert a small stop cock. Let the chimney of the arch be immediately beyond the further end of this last mentioned pan. The mason will of course know how to construct the arch, so as to have a good draught. It is desirable to set the arch near to some bluff, so that the sap, when collected in a reservoir, may flow directly into the upper or larger pan.

Both pans are then filled with sap, and fire is put under; and afterwards the sap is only let into the upper pan, and from that into the lower, through the stop-cock above described. In this manner, the lower pan is fed constantly with hot sap, and is constantly boiling.

You syrup down only in the lower pan, and you do not sugar off in either.

You cannot make these pans boil over, and when syruing down, cannot burn the sap, as in the cauldron or pot ash kettle. The wood should be collected and prepared the season before, and kept dry.

As the correspondent, at whose particular instance the above is furnished, may wish to employ kettles instead of pans, we will add, that the great point to

be obtained, in constructing an arch, or furnace, is to expose the greatest possible surface of the boiler to the immediate action of the fire. To effect this, two rules are to be observed—first, to conform the brick work to the shape of the boiler, leaving an interval of four or five inches only between them, and to suspend the boiler by the flange resting upon a course of brick set edgewise. Second, to elevate the grate for the wood—an ash pit being left under it—three to six inches above the bottom of the boiler—so that the flame will surround and cling to the boiler on its way to the chimney—and not pass under the bottom and only upon one of its sides.

Litter your Cattle Yards.

Every farmer has, or ought to have, from the produce of his farm, quantities of straw, corn stalks, and other coarse vegetable matters, which the cattle reject, but which is yet good and profitable food for his farm crops, if properly husbanded and judiciously applied. In a well constructed yard, calculated to retain the urine of animals and other liquids, the coarse litter should be spread at intervals through the winter. It thereby becomes doubly enriching to the soil, when spread upon it, by the fertilizing properties of the liquids which it there imbibes. Arthur Young understood the economy of enriching lands, as well as of fattening cattle. He says, if litter is scarce, two tons may be made to suffice for a fattening beast during the winter months; though if plenty, or in situations where litter can be purchased, he thinks an animal may convert much more into rich manure. The Flemings count upon the urine of their farm stock as nearly equal to the other excrementitious matter, and they save and apply it with care. We almost wholly lose those fertilizing matters, yet we can mostly save them in concave cattle yards, if we will frequently apply litter to absorb and take them up. He that wastes or sells his litter, is a bad economist, unless he brings from market a return load of dung. The man who rides a load of straw ten miles to market, barely gets pay for his time, while he robs his soil of that which would increase its products. Straw, manufactured into dung by the farm stock, is worth more in the soil than it is in the market, even were the expense of transportation in both cases alike. But it is the waste, or a want of the due application of litter, that is most to be complained of. Let it be remembered, that every vegetable substance, however worthless it may seem, is convertible, if buried in the soil, into corn, roots, hay and pulse, and ultimately into meat, cheese, butter, wool, &c., and that he who would realise the interest must deposit the principal.

To illustrate more forcibly the value of straw and other litter, in augmenting manure, we quote the following from the Farmer's Calendar.

"Mr. Moody—Forty-five fat oxen, in fattening, littered with twenty wagon loads of stubble, raised two hundred loads, each three tons, of rotten dung, worth 7s. 6d. (\$1.65) a load.

"Every load of hay and litter given to beasts fattening on oil-cake, yield seven loads of dung, each one ton and a half, exclusive of the weight of the cake.

"Mr. Arbuthnot, one hundred and thirty-four sheep and thirty lambs, penned six weeks in a standing fold, and littered with five loads and forty trusses of straw, made twenty-eight large loads of dung." The straw, at 20s., cost £5.15. The dung was worth £10. Profit £4.5. (\$19.20.)

"William White—Thirty-six cows and four horses tied up; ate fifty tons of hay, and had twenty acres of straw for litter: they made two hundred loads of dung, in rotten order for the land."

Messrs. Moody and Arbuthnot say it answers well to buy litter with a view to dung; that in feeding oxen with oil cake, one load of straw makes seven loads of dung, each a ton and a half; and that in feeding sheep with turnips, one load made more than 4½ large loads, worth 7s. 6d. each. Mr. White, with 30 loads of straw, made 200 of manure in littering cows, which is 6½ of manure for one of straw.

"I have found," says Mr. Young, "by experiments very carefully made, that a ton of straw used in littering a stable kept dry, and the urine not retained, will give three and a half to four tons of dung; but used in littering fat hogs, a ton gave seven or eight of dung."

Our Premiums.

After we had awarded our premiums for 1838, and the sheet containing the award, had been struck off, (Jan. 15,) we received the two applications for the Indian corn premium, which appear in our paper of to-day. Under these circumstances, the last applicants must be content with the reflection, that they have set good examples in farming, have obtained profitable crops, and have deserved premiums; and, as we intend to offer other premiums for the coming year, we hope they may yet do better, and put in their claims in time.

We also received, in time, a drawing and description of a farm dwelling-house. The drawing

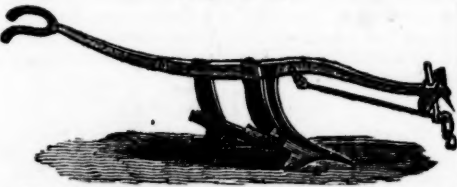
was mislaid, but has since been replaced. This communication contains no estimate of the expense—a material point to one who may wish to adopt the model—as every man should count the cost before he begins to build. We beg our correspondent to supply the deficiency. We have also received, (in Feb.) three other plans and descriptions of farm houses. We intend to publish all these communications, in some one of our future numbers, with the drawings which accompany them; and to prolong the time for competing for the twenty dollar premium offered for the best plan, to January, 1840. In the mean time, we ask such of our correspondents as have not done it, to send us estimates of the cost of materials—wood, brick or stone—for buildings like those they have severally described.

Whittington Spring Wheat.

We noticed the receipt of a sample of this beautiful grain in our January number. Mr. George C. Thorburn, of New-York, has just received a few bushels from England, which he sells at \$8 per bushel.

Smith's Subsoil Plough.

[Fig. No. 1.]



The objects sought to be obtained by the use of the subsoil plough, are these, viz:

1. To permit the surplus water to pass down.
2. To render the subsoil permeable to the enriching influence of the atmosphere—to those chemical changes which take place in a fallow; and ultimately to deepen the super-soil, and thereby increase the pasture for the plants growing upon it.

A superficial soil, upon a tenacious subsoil, is often cold, inert and precarious, by reason of the water which settles upon the latter, stagnates in summer, and becomes prejudicial to healthy vegetation. By deepening the permeable stratum from six to twelve inches, with the subsoil plough, the surplus water settles down that much lower, and often beyond the reach of the roots of the crop, and the soil becomes correspondingly better fitted to sustain a healthy vegetation. Crops will not do well where the roots penetrate a stratum abounding in water.

The atmosphere is always charged with the food of plants, in a gaseous form; and the subsoil contains more or less of the elements of this food, insoluble or useless, from the presence of too much water, and the want of atmospheric and solar influence to render it soluble, and fitted for the absorbent vessels of the plant. The subsoil plough not only frees it from excess of moisture, but renders it pervious to atmospheric and solar influence—not only converts the insoluble into soluble food, but adds to it the fertilizing properties of the atmosphere.

By the operations of the subsoil plough, in a few years, the loosened subsoil acquires the fertility of the super-soil, and becomes blended with it; the tilth, the pasture of plants, is deepened and enlarged; the roots have a wider range; the soil will support a heavier crop, and the danger from drought as well as from heavy rains, is materially lessened.

The advantages which have resulted from the use of Smith's plough, were sometime ago noticed in the Cultivator. Its reputation for usefulness has not since been impaired. At the Northumberland cattle show, in October, Mr. Gray, in the course of his remarks at the dinner table, stated, that his attention had been called, a few days before, to a field of wheat, one half of which had been ploughed with a subsoil plough, and the other half by the common plough. "Both of the divisions of the field," said Mr. Gray, "were equally fallowed and manured, and there was indeed, no difference between them, except as to the mode of ploughing. He had carefully examined the results, and had no hesitation in saying, that the half which had been submitted to the operation of the subsoil plough, had produced a crop full one third more than the other half; and many persons who had compared the respective crops, gave it as their opinion, that the produce had been doubled by the use of the implement in question. The diminished produce on the latter part of the field, was occasioned by the water settling in the furrows, and damaging or rotting the stocks, an injury which is obviated by the use of the subsoil plough. In the part worked with this no distinction was observed in the crop between the ridges and the furrows, but every part bore an abundant crop of fine wheat."

It is not to be understood, however, that the sub-

soil plough is to supersede underdraining in all cases.

Clover—Its Value for Cattle, for Seed and for the Soil.

We have received a communication from Mr. Henry Brewer, of Enfield, Tompkins, illustrating strongly the value of clover, as a means of keeping up the fertility of his land, and of rendering its culture profitable. Mr. Brewer was from old Dutchess, the land of clover. He purchased his farm in Enfield, in 1830, at \$8.50 per acre. It now gives a product of from fifteen to forty dollars per acre per annum; and the improvement and the profit he ascribes principally to the cultivation of clover. As the communication is very lengthy, and having the writer's permission so to do, we give the purport of it in a condensed form.

Mr. Brewer remarks, that New-York farmers pay to those of New Jersey and Pennsylvania, annually, many thousand dollars for clover seed, which they might raise for themselves with profit. He would as soon think of buying his seed oats and seed wheat, as his clover seed. He prefers the southern or dwarf clover, because it is fit to cut five or ten days earlier than the tall growing or northern kind, and is more certain of ripening the seed of the second crop. He sows with his small grain, at the rate of fifteen lbs. the acre, and sometimes sows his corn fields after the last hoeing.

Mr. Brewer appropriates his clover to three very valuable purposes—to feed his stock, to fertilize his land, and to fill his purse—and he has succeeded admirably in them all, so far as we can judge. His cattle thrive upon it both as a green and a dry crop—in summer and winter;—his wheat and corn feed and thrive upon it, when buried and decomposing in the soil;—and his purse increases with the increase of his cattle and his crops. And finally, besides feeding his cattle, and fertilizing his soil, the seed of his second crop gives him an acreable profit, annually, of from fifteen to fifty dollars. Now there is no secret in the business—no patent right. He gives you his whole process, that you may profit by his example if you will. We will endeavor to give it in concise and plain terms.

Clover is either used for hay or pasture the first crop, and uniformly for seed and forage the second crop. If for pasture, he turns upon it his stock about the first of May, or when the soil has become so firm that the feet of the cattle will not poach the sod. At this time, the growth is such, as to enable the cattle to thrive. He pastures till about the 20th June, and the closer it is cropped at this time, the better, he thinks. The cattle are then withdrawn, and the second crop is permitted to grow and mature its seed. If the first crop is designed for hay, it is cut from the 20th to the 25th June, although it may not have passed the bloom, or arrived at that state when most farmers deem it in a proper condition to cut. It is important to cut it as early as the 25th, Mr. B. thinks, in order to give the second crop time to grow and mature its seed before it is injured by the frosts of autumn—five days often making a material difference in the seed crop. We do not like Mr. B's mode of curing this early cut clover: he takes it, when partially cured, to his barn, and spreads it about upon scaffolds and poles, till made, and then puts it into his bay. This causes unnecessary labor. Cured in grass cocks, according to our repeated directions, it will be as good as when spread over a barn, and more than half the labor will be saved. Mr. B. thinks clover hay made in the shade is much better than that which is made in the sun. "The next way of curing this green clover," says the writer, "is with wheat straw, that has been kept in the barn for that purpose, by laying a course of hay and then of straw, and so on, until you have it all secured." The importance of mowing the first crop early, is illustrated by the fact, that one of Mr. B's neighbors, who had been persuaded to cut his first crop some days earlier than usual, acknowledged that he should obtain last season, thirty bushels more clover seed than usual, in consequence of it.

The seed crop is gathered with care, and brought to the barn as soon as it is fit, that rain upon it, or unnecessary exposure to the weather, may be avoided, both of which materially impair the value of the butts or straw for fodder. The heads are separated with a flail, and the seed extracted by Robert Rittenhouse & Co's. patent clover machine. The average product in seed, is four to five bushels the acre; which, at present prices, is worth sixty to seventy dollars—a tolerable acreable profit for a second crop. In regard to his clover machine, Mr. B. has cleaned four hundred bushels of seed with his, without a dollar of expense in repairs. It is portable; and "when there is once a machine in a neighborhood," says Mr. B. "I think the farmers will then raise their own seed, as is the case in my neighbor-

hood. And if they raise it themselves they think it costs nothing; they then sow liberally, and get a bountiful return." The clover machine costs sixty dollars, and it would verily seem to be worth more than that amount annually to the farmers of the neighborhood. Mr. Brewer's machine was made by Blackwell, of Albion, Orleans county.

In regard to the value of clover in keeping up the fertility of the farm, Mr. Brewer considers it of the first consequence; for, says he, "I think I can manure my farm with clover, cheaper than I can cart out my manure from my own barn yard; although I have it all carted out in the spring of the year for my hoed crops, while unfermented, because I think it of more value to have it rot in the soil than in the farm yard. I don't wish to have it understood that I am an advocate of the miserable practice of leaving my manure in my barn yard, as many of my neighboring farmers do, to waste one half of its best qualities, for I have it thoroughly cleaned every year."

One word as to the condition of the farm when it came under Mr. B's management. The soil is described as a sandy loam, mixed with slate gravel, and most of it very stony. When he came on to it in 1830, "there was about fifty acres of cleared land, and it was considered one of the poorest farms in the town, by my neighbors, who assured me I could not get grass enough from the farm to keep one cow. There was but two acres of meadow upon it, and that was too wet to plough. But this did not discourage me. I purchased two and a half bushels of clover seed the first spring, which some of my neighbors thought was enough to seed my whole farm, weeds and all; but I sowed it on sixteen acres." Such was Mr. Brewer's beginning; and the reader is already advised that this spirited beginning has been followed up for eight years with increasing advantage. The wheat crop has averaged from eighteen to twenty-four bushels per acre.

An Agricultural Society in Montgomery.

A society is organizing in Montgomery, under the style of "*Agricultural and Rural Society*," calculated to produce the best results, and to benefit every class and age of the population. Every town is expected to organize an auxiliary society, the president of which is a vice-president of the county society; and the school districts constitute in a measure departments or branches of the town societies. The plan embraces—

1. Whatever regards health and domestic comfort—and includes a provident care of all domestic animals.
2. An improvement in the breeds of farm stock, and a better provision for their maintenance and comfort.
3. An improvement in garden culture, orcharding and rural embellishment.
4. Improvement in common roads,—an improvement much wanted every where among us. And as a sure and solid foundation to the whole.
5. *Common Schools*—On the improvement and success of these, perhaps all else depends. There must be introduced agreeable manners and systems of education, to invite and allure children to useful action. Right education develops and directs powers of mind and body, where energies might otherwise slumber, or do mischief for life. It forms and fixes individual, social, and national character. There must be provided competent teachers, and geometrical forms and figures of surface and solids; mechanical, mathematical and philosophical instruments and apparatus, and correct engravings and colourings to explain the general anatomy and economy of animals and vegetables; collections of plants and minerals. Books, composed and compiled, suited to the intelligence and condition of children; few such are to be found, and perhaps none, exactly fitting for American education. Adequate teachers are almost equally rare. Children themselves, and parents, and the friends of education, liberty, morals and religion, may do much, yet the co-operation of the legislature is demanded in a plan so desirable, so general and evidently so practicable."

Cuts of Farm Implements.

We have received several drawings of new farm implements and machinery, to be inserted in the Cultivator. The rule we have adopted in regard to these is this. If the implement is patented, the right of using it is private property, and the patentee, or proprietor, must be at the expense of the cut, if one is to be inserted. If there is no patent right, and every one has a right to make and use it, we are at the expense of the cut, if we deem the implement one of manifest public utility. This rule has only been departed from when we have been presented with the new implement, and have been satisfied, upon trial, of its usefulness.

Patent Office.

It appears from the annual report of the commissioner, that 520 patents have been issued during the last year; that 224 patents have expired; that the receipts of the office have been \$42,123.54, and the ordinary expenses of the office have been \$19,180.18—leaving a surplus of \$19,243.86.

Farmers' Garden.

PERENNIALS, BIENNIALS AND ANNUALS.

Perennials do not generally flower the first year, but die down to the ground, and spring up again the next spring, for a number of years—as peonies, lilies, &c. *Biennials* flower the second year and then die. *Annuals* flower and die the year they are sown. We shall omit the botanic names, and notice such as are most conspicuous for beauty and fragrance, and are of easy culture.

1. *Amaranthus*, the globe and the tricolour, the first admired for its everlasting flowers, and the latter for its foliage. Plant the seed in May, and allow the plants room to spread. Annual.

2. *Aster*, (China) An annual. The double, or quilled and the German, or striped flowered, are most admired, though a bed of the early flowering, exhibiting as they do a great variety of colours, is highly ornamental. Sow early. If a small space in the hot bed can be given to this, the *amaranthus*, balsam, &c. their season of flowering may be greatly accelerated.

3. *Balsams*, a beautiful annual, of infinite varieties, very much improved within a few years, in brilliancy and in combination of colours. One of the most showy flowers for the autumnal borders. Gather seeds before the pods change colour, and sow early.

4. *Canterbury Bell*, biennial, admired for the profusion of its large bell-shaped blue and white flowers.

5. *Chrysanthemum*, perennial, much admired, of many varieties, propagated by dividing the roots. South of New-York they generally flower well in the open ground; but in our borean region, they must be potted in August or September and sheltered to produce flowers. Many of the varieties are brilliant when in bloom.

6. *Carnation*, beautiful and fragrant, but too tender for the open ground in winter. It flowers in summer, and should be taken in before severe frosts occur. Propagated by pipings, layers or division of the roots.

7. *Crown imperial*, a splendid bulbous rooted plant, flowering early. Plant in autumn, four inches deep. Multiplies by offsets, and is produced from seeds.

8. *Crocus*, a small bulbous rooted perennial, multiplied by offsets—hardy, flowers very early, and is of various colours. Plant in autumn two inches deep.

9. *Columbine*, very common, very neat—many species,—perennial. Seeds.

10. *Crimson monardia*, (high balm,)—well known. Offsets.

11. *Convolvulus*, an annual, many species, as the morning glory, bell of day, &c. admired. Sow the seeds early.

12. *Coreopsis tinctoria*, a pretty annual, with yellow flowers, and a dark centre, which, when once introduced, propagates itself, as the plants which spring up from the seed self-sown, endure the winter's cold, and flower the earlier. It may be sown in September. There are several other species of the *coreopsis*.

13. *Candytuft*, white and purple flowering, are pretty dwarf growing annuals, the seeds of which should be sown early.

14. *Coxcomb*, an annual; like the *amaranthus* and eternal flower, it retains its beauty through the winter, if gathered before frost. Sow early, and in hot bed if convenient.

15. *Clematis*, (Virgin's bower.) Several species, beautiful perennial climbers—some woody—some indigenuous. Seeds.

16. *Dahlia*, too well known and admired to need a description. It is one of the greatest ornaments of the garden, and often flowers from June to October. It possesses about the same hardness as the potato, and like the potato may be started in the spring in earth in the green-house or dwelling, though the stem should not be exposed in the open ground till the first of June. A stake should be put down by each plant, which should retain but one stem, to tie the plant to as it grows. The roots may be divided into as many parts as there are sprouts. Plant from three to five feet apart in moist rich ground. The roots should be taken up after the plants have done flowering, and being suffered to dry a few hours in the sun, may be packed for the winter in dry sand, and placed in a dry cellar, or cellar kitchen. They do not bear frost or great humidity. A dozen will afford a pretty variety of colours.

17. *Daisy*, a modest but beautiful dwarf perennial, suitable for the border, producing double white and pink flowers, multiplied by seeds or offsets.

18. *Double perennial Sunflower*, produces an abundance of double showy yellow flowers.

19. *Eternal flower*, red, white, purple and blue, all beautiful, the flowers retain their colours through the winter, and, like the *amaranthus* and *coxcomb*, make a fine appearance in vases.

20. *Eupatorium*, a perennial with blue flowers much admired. Divide the roots.

21. *Evening primrose*, (onothera) several species, perennial and annual, the dwarf annual particularly handsome.

22. *Eltscholtzia*, (Californica,) a dwarf of beautiful foliage and a yellow flower, sows itself, and is long in bloom. If a little protected, the plants will stand the winter, and flower early.

23. *Foxglove*, white and purple flowering. Produced from seed. Perennial. Sow early, and cover the seed lightly.

24. *Fraxinella*, perennial, white and pink flowering, the blossoms and capsules possessing a peculiar aromatic fragrance. Seeds.

25. *Hyacinth*, a bulbous rooted perennial, producing beautiful and fragrant flowers of various colours, single and double. Usually multiplied by offsets.

26. *Hollyhock*, or holy-oak, termed a perennial, but is rather a biennial, unless the stems are prevented from seeding. It is a showy plant, of a multiplicity of colours, and some of the double varieties have all the delicacy and beauty of the rose.

27. *Iris*, or fleur-de-lis—many species, embracing different combinations of colours—is generally grown on the border, and the dwarf kinds are used for edgings. Multiplies rapidly.

28. *Larkspur*. There are several perennial species, much admired for their beauty, particularly the Chinese double flowering, which last can be only multiplied by dividing the roots—the others producing seeds. There are other species that are biennial and annual. The rocket, (*ajacis*), sown in a bed in September, produces the next season, the most brilliant spikes of diversified flowers.

29. *Lily*. There are many beautiful species belonging to this genus, and several of them are natives of our woods and meadows. We have transplanted the common meadow lily, (*superbum*), when in full bloom, and some of them, under culture, have produced from 30 to 47 flowers upon a single stem. The tyger lily is very showy. Propagated by seeds or by dividing the roots.

30. *Lupins*, several species, perennial, having showy flowers, propagated by seeds.

31. *Lobelia*, the scarlet and the blue, are both natives and are perennial, and pretty flowering plants. Seeds.

32. *Lichness*, the double scarlet, fulgens and double ragged robin (*Jos cuculi*) are beautiful species of this family. These kinds propagated by dividing the roots.

33. *Lichnidia*, or phlox, several species, of various colours, coming into flower in succession. Propagated by dividing the roots.

34. *Monkshood*, the common, a blue flower, and a new kind has variegated flowers.

35. *Mignonet*—admired more for its fragrance than the beauty of its flowers. Annual—seeds.

36. *Musk plant*, a dwarf annual, with small yellow flowers, highly scented with musk. Sows itself when once introduced.

37. *Narcissus*, a bulbous rooted plant, managed like the hyacinth—blooms early, is beautiful and fragrant. The polianthus narcissus and jonquils, both elegant flowering plants, are propagated and cultivated, in all respects, in the same manner.

38. *Nasturtium*, is an annual, two varieties, with showy flowers, cultivated principally for their fleshy pods, which are gathered before they are ripe, and pickled. They are used as a substitute for caper sauce.

39. *Paeony*. The double scarlet is common, the double bluish less so; but the Chinese, of which there are at least three herbaceous kinds (*Whiteji*, *Humei* and *Fragrans*) are equal in beauty, and surpass the others in fragrance. There are several other kinds of less note.

40. *Peas*—The everlasting is perennial, and there are several annuals, differing in flowers and fragrance.

41. *Pink*—a large family of plants, embracing the Sweet William, clove, China, and many other species. Some are equal in beauty to the carnation, and the pheasant-eyed, which is propagated by layers, affords at all seasons, a beautiful tuft of green foliage.

42. *Poppy*, perennial, has a very large, showy scarlet flower. There are two or three oriental species. Seeds.

43. *Poppy*, annual—many varieties, and of brilliant and diversified colours. To perpetuate double ones, those with single flowers, growing near, should be destroyed as soon as the flower buds burst.

44. *Petunia*, an annual of recent introduction, purple and white flowering—flowers very abundant, resembling in size and shape the morning glory.

45. *Purple hyacinth bean*, makes a very pretty show when trained over an arbor, or upon a wall.

46. *Polyanthus*—many varieties—a bulbous rooted plant, treated like the hyacinth. Offsets.

47. *Spiderwort*, three kinds, blue, pink and white flowered—perennials. Divide the roots.

48. *Tulip*. A great many varieties of this beautiful plant are annually imported, and the finer kinds command a high price. It may be raised from seed; but the more ready way is to plant the bulbs, which multiply by offsets. The tulip should be planted at

six inches distance, in a rich soil, and the bulb should be surrounded by sand when planted. Plant three inches deep. The roots should be taken up at least every second year and divided.

49. *Violet*—many species and varieties. This has now become an amateur flower in Britain; violet shows are frequent, and prizes are awarded for the best flowers. The choice kinds have been partially cultivated by amateur florists among us.

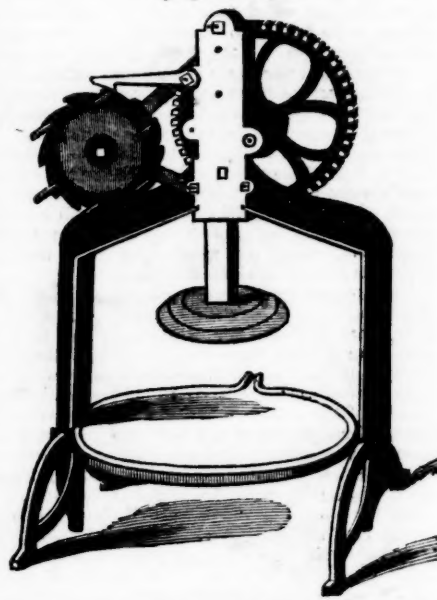
This list of ornamental plants might be greatly extended; but we opine it will be considered already too extensive for a farmer's care. If so, it admits of being curtailed to suit the taste or the convenience of the cultivator. Our woods and meadows, and swamps abound with ornamental plants highly prized in Europe; and which would also be admired here, were they not common. A collection of such as are not here enumerated may be made without much trouble or expense, which would add greatly to the beauty and variety of the ornamental grounds.

The ornamental department may be blended with the fruit and kitchen departments; it may be spread through these and the court-yard, or grounds about the dwellings, or it may constitute a distinct department, under the name of flower garden or shrubbery, combined or separate. In whatever manner it is arranged, it should be contiguous to the dwelling, of easy approach, and where it may be seen from the doors and windows.

Tower's Cheese Press.

We called the public attention to this press, of which we here give a cut, in October, 1837. The inventor, Jonas Tower, lives in Madison, Ohio.—We here figure and again notice it, because we deem it the best that has ever come under our notice; and were it in market here, we doubt not it would sell well.

[Fig. No. 2.]



The press is entirely of cast iron, except the lever. It occupies about two feet square, and stands about three feet high. It is on the principle of continuous pressure; the power may be increased at pleasure, to almost any required extent, by a youth of twelve years old. It is simple, and can hardly get out of repair. Its advantages are—

It occupies but little space; and

The pressure may be graduated at pleasure.

The Silk Business.

An uncommon degree of public attention has been turned to this subject during the last few months. A national convention of silk growers was held at Baltimore, in December, as we have already noticed. Since which time, state conventions have been held in Maryland, Pennsylvania and some other states, and the "Journal of the American Silk Society, and Rural Economist," has been commenced at Baltimore, by J. S. SKINNER, the original publisher of the American Farmer, assisted, we believe, by G. B. SMITH, two gentlemen eminently qualified to conduct a publication of this kind. The Journal is to be published in monthly numbers, each number to contain thirty-two pages, 8 vo., at two dollars a year, to be paid in advance. A prospectus of the Journal may be seen at the office of the Cultivator, where subscriptions for the work will be received. The first number contains the proceedings, including the debates, of the national convention, and of the American silk society, an address to the people of the United

States, which we insert in another column; and several other matters of great interest to the silk grower. We commend this publication to the notice of all who have commenced, or who intend to commence, the silk culture.

Extensive preparations are making, and heavy capitals have been put in requisition, to extend greatly this business the coming season, particularly in the middle states, where we think it can be managed with the greatest economy; while the northern and eastern states will probably be found to excel in growing the sugar beet, as this is more properly the beet zone—the root grown here abounding more in saccharine matter than that grown at the south. This is inferred from the fact, that the beet grown in the northern departments of France furnishes a richer juice than that grown in the southern departments.

The Ohio State Agricultural Society,

Was organized early in January. Samuel Spangler was appointed president, and William H. Harrison and eighteen others, vice-presidents. It has commenced its operations with a spirit which presages much good to the state; and which will tend to arrest, we doubt not, that exhausting system of culture, common to the settlers on new lands, which has so lamentably impoverished the soil in the old settled states. The society resolved to establish a state agricultural journal—to petition the legislature for pecuniary aid, and to provide for an agricultural survey of the state;—to inquire into the propriety of invoking the aid of the national and state governments in purchasing, for the use of the society, a farm, or a tract of land, for the purpose of making experiments, and establishing thereon an agricultural school; and to take measures for the organization of county agricultural societies, of which, however, several already exist.

The establishment of a state agricultural journal, will no doubt accelerate agricultural improvement; but its potency and its benefits will be more than doubled if the society can introduce it into common schools, or common school libraries. It will contain much matter of interest to the boys, and will beget in them a taste for useful inquiry and experiment; and in this way too will incidentally be brought under the eye, and made to exert a benign influence on the practice of thousands of parents, who, if they read at all, must in this or some other way be decoyed into the habit. [We beg to make our acknowledgments to the society for the compliment it has done us, of enrolling the name of the Conductor among its honorary members.]

To Preserve Poultry in Winter.

About the 15th November, the Conductor purchased a quantity of poultry for winter use. The insides were carefully drawn, their place partially filled with charcoal, and the poultry hung in an airy loft. It was used through the winter, till about the first of February, and although some was kept seventy days, none of it was the least affected with must or taint—the charcoal having kept it sweet.

Relative Advantages of Large and Small Sheep.

In the proceedings of the Penrith Agricultural Society, England, we find some remarks of Mr. Gray, on the comparative profit, to the grazier, of large and small breeds of sheep, which we transfer into our columns for the benefit of our readers—of the buyer as well as the seller of mutton. It is a mistaken notion, too prevalent, that the largest carcasses are the cheapest, or the very fat ones the most palatable and healthy. On the contrary, the Devon cattle, South Down sheep, and the Berkshire pig, which are considered medium sized breeds, give better beef, better mutton, and better pork, than the larger and coarser breeds of these animals. The former give more *fat lean* meat than the latter, that is, the fat is better intermixed with the lean; the meat is more rich, tender and economical for the table, although the proportion of clear tallow or fat may be less. But our extract refers merely to the profits of the grazier. It seems that in their awards at the fair, the judges had somewhat favored the small breeds of sheep. On the health of the judges being given, Mr. Gray, the chairman, addressed the meeting, and among other remarks, made the following:

"I dare say that the opinion of the judges, with respect to sheep, has been much censured, although I declare I have not heard any observations to that effect. My reason for supposing so, is this, that people who have not great experience of the qualities and niceties connected with every description of stock, are apt to look principally at that which fills the eye, and to form a favorable opinion of animals upon a large scale, and this is particularly the case with respect to the Leicester sheep. I have had considerable experience with sheep of this description, having, in former times, kept a flock of between nine hundred and one thousand Leicester

ewes, and therefore I have some title to speak upon the subject. I say, then, that the largest sheep are the least profitable. If it can be ascertained, as I believe it has been, that you can feed on an acre of land a greater number of pounds of mutton in carcasses of from 18 to 20 lbs. per quarter, than in carcasses of from twenty-eight to thirty lbs., then every one must agree that the advantages are on the side of the smaller carcasses. The reason of this is obvious; in times of drought and scarcity, a small animal can collect for itself as much food as a larger one, and having a smaller carcass, it derives more advantage from it. Whilst, therefore, the larger animal is losing in condition, the smaller one, if not improving, remains stationary; and when the period arrives at which abundance of food can be obtained, it almost immediately re-assumes its position, and is fit to go to the market sooner than the larger animal. I do not presume to offer any thing like dictation to this meeting, but I am confident that those gentlemen present, who have had experience on this subject, will bear me out in saying, that there are advantages in breeding the description of stock to which I have been referring, which do not attach to animals of better appearance and larger size."

Economy in keeping Horses.

Roberts, in his Agricultural Economy, maintains that one pair of horses, well kept, are sufficient team to work a fifty acre farm, and to work it well, under the alternating system. It has been proved, he says, that a team going at the respective rates of a mile and a half and two miles an hour, will plough in nine hours as follows:

Width of furrow.	Rates per hour.	A.	R.	P.
Eight inches, ..	One mile and a half,	1	0	0
Nine inches,...	ditto,	1	0	20
Eight inches, ..	Two miles,	1	1	10
Nine inches,...	ditto,	1	2	0

Three things requires attention from every man who wishes to keep horses well and economically:

1. The food must be natural for them;
2. The quantity of food requisite to keep their condition equal to their work;
3. The best manner of giving them their food, with the view of its being speedily eaten, so that they may lie down to rest.

The natural food for the horse, says our author, is corn, hay and grass; but that under artificial management, there may be advantageously substituted for natural food, or conjoined with it, potatoes, parsnips, carrots, turnips and mangold wurzel, together with straw, bean (and corn) stalks, pea haulm, vetches, clover and other cultivated grasses, cut green.

Hay is sufficient to keep a horse to look at; but corn is indispensable to enable him to stand hard work. A horse requires thirty pounds of dry food a day, of which a part must be corn or its equivalent; to those which work, one pound of good oats is equal in nutriment to three pounds of good hay. Heavy oats are worth more, pound for pound, than light oats, as will be seen by the following scale:

Weight per bushel.	Produce in meal.	Produce in bran.
42 lbs.	25 lbs. 2 oz.	16 lbs. 14 oz.
40 lbs.	23 lbs. 6 oz.	16 lbs. 10 oz.
38 lbs.	21 lbs. 12 oz.	16 lbs. 4 oz.
36 lbs.	20 lbs. 3 oz.	15 lbs. 13 oz.
34 lbs.	18 lbs. 11 oz.	15 lbs. 5 oz.
32 lbs.	17 lbs. 5 oz.	14 lbs. 11 oz.
30 lbs.	16 lbs. 1 oz.	13 lbs. 15 oz.

In general, the different kinds of grain are nutritious in proportion to the weight; while two pounds of green food or roots, are considered equal to one of dry.

"Whatever fodder be used," says Mr. Roberts, "it should be supplied in such a form as to be eat forthwith, that the poor animals should enjoy refreshing rest; to secure this, the fodder should be cut or crushed, and placed in a MANGER"—not a rack. "When the respective feeds will have been consumed, every horse will lie down to rest; his hunger being satisfied, there will be no temptation to keeping him standing for hours, as would be the case, were his rack stuffed with hay, according to the too general custom of farmers. The nutriment contained in every kind of grain depends upon its weight." It is to be remarked, that concentrated food, as grain, will not do alone, there must be something to increase the bulk, to impart the stimulus of distension, before the functions of digestion can be carried on in perfection. Horses, therefore, and even fattening animals, which are fed high with grain, require cut hay, or even straw, for this purpose, independent of the nutriment they afford.

"When the quantity of hay supplied as food for horses," says Mr. R. "has been increased, and the quantity of oats diminished, it has been found that the animals, though they appear to improve, as to the fatness of their looks, were nevertheless not so able to stand hard work; and on the contrary, when the corn has been increased, and the hay diminished, it has been found that though the animals might, as to appearance, be leaner, yet that they were stronger, more equal to hard labor, and in better working condition."

The following different component parts of a ra-

tion of food for a horse, have been published in the Sporting Magazine, and are worthy of notice, as coming from a proficient in the management of horses.

	lbs.	lbs.	lbs.	lbs.
Corn, peas or beans, ground or crushed,	5	5	10	5
Hay, cut into chaff,	7	8	10	8
Straw, do	7	10	10	0
Potatoes steamed,	5	5	0	0
Malt dust or oil-cake,	0	2	0	2
Bran,	0	0	0	7
Grains,	6	0	0	0

30 30 30 30

Other articles, such as apples, carrots, parsnips, turnips, beets, &c. may be substituted. If the food is found to be heating, small doses of nitre or flour of sulphur may be found beneficial; and about two ounces of salt should be given twice or thrice a week.

Foot Rot in Sheep.

We find in our last Farmers' Magazine, the following directions for curing this disease, which are simple, cheap, and we should think effectual.

"Towards evening draw the lame sheep from the flock, have the hoof of the diseased foot, as far as it has any dirt or fester under it; wipe it dry and clean, and bathe the tender parts in the evening with a feather previously dipped in butter (muriate) of antimony; keep their feet dry during the night, and on the following day they may be turned into a pasture by themselves, where they will daily become better. At the expiration of about a week they should again be examined. The majority of them will be found perfectly well, and may be allowed to join the sound flock, as they will be clear of all infection. Perhaps about one in ten will require a little more pairing with a knife, and a very slight redressing of the sore place, with the feather prepared as before.

JOHN BERKETT.

"Dullston, Oct. 1838."

Journals of Education.

We have recently received three new publications of this class; one from Boston, one from Hartford, and one from Detroit. They all evince talent and good judgment in their conductors, and an awakened and praiseworthy zeal in the community. We consider the increased circulation of periodicals on education and agriculture, as among the greatest improvements of the day, and as the certain precursors of an improved state of society.

Insect Enemies.

Three prescriptions against the depredations of insect enemies, which prey upon our garden and field crops, have been mentioned to us, of the efficacy of which we make no pretensions of a personal knowledge; but which being simple, and within the means of every family, and the trial of which will cost little or nothing, we give as we received them.

A good lady, now a widow, whose husband was, we believe, a gardener, says, that the sowing of buckwheat, broadcast, in the preparation of a turnip crop, is efficacious in preventing the ravages of the turnip fly, and that when the turnips have got their rough leaves, the buckwheat may be cut up without danger; that her husband always had good turnips with this precaution, and seldom saved his crop without it. Another widow lady gives us a like assurance, from her own practice.

A highly respectable gentleman assures us, that he is never troubled with the yellow bug upon his cucumbers and melons—because he always scatters upon the hills, at planting, a little lettuce seed.

And our Michigan correspondent, Mr. Beden, maintains stoutly, that poppies are a sure protection against every species of obnoxious bug and fly.

There is no doubt that the odor of many plants is obnoxious to certain insects, and will protect from their depredations. Thus Russian leather is safe against the moth that often destroys the binding of books, on account of the odor of the bark with which it is tanned. Spirits of turpentine, and the shavings of cedar, will protect clothing from the same and other insects, on account of the odor which they impart. The elder and hemp are obnoxious to many families of insects; and we do not see why buckwheat may not be so to the turnip fly, lettuce to the yellow bug, and poppies to many flies, bugs and other insects. It will not cost much to try either or all of them; and if successful, the secret is worth knowing.

Templemoyle Agricultural School.

We gave in our July number an account of this school, recently established in Ireland, by private subscription. We have just seen an account of the first examination of its pupils. It is an establishment designed to afford a practical instruction in agriculture and the simple sciences, with wholesome food and a comfortable home, to one hundred pu-

pils, at £10 (\$44) per annum for each. "The importance of the system brought into operation at Templemoyle," says the writer whom we quote, "strikes us as being so vast, that questions of a party nature, however exciting for the time they be, sink into utter insignificance when compared with a principle so solid, and so essential to the well being of the country, as one which comprises the agricultural and liberal education of the farming classes." The exhibition was attended by a great concourse of the most highly respectable people; and the examination was conducted by competent gentlemen in the different departments of instruction. The boys that had been more than six months at the school were examined by James Anderson, Esq. in the presence of some of the first agriculturists of the country. The questions embraced the whole theory and practice of agriculture,—the use of the instruments of husbandry, the best methods of draining land, the laying out of ridges and water furrows, the management of horses and cattle, the different modes of cultivating the several crops, with the most approved rotation of each, &c. &c. The answers gave high satisfaction. Capt. Portland examined a class in botany, "and we question much," says the report, "if among the sons and daughters of the wealthy and learned, would such intimate knowledge of an abstruse and technical science be exhibited."

When shall we enjoy the pleasure of witnessing the examination of an agricultural school in New-York? There are thousands of parents who would like to avail themselves of the advantages of such a school for their sons, but there are few, very few, seemingly, who are willing to come forward to assist to establish one, for the benefit of their sons or their country. We might possess all the advantages of such a school in a few months, if ten gentlemen of influence would embark spiritedly in the enterprise. We have a law of incorporation; we have a quarter of the requisite sum subscribed, to put a school in operation, on a liberal and enlightened scale—but as it can furnish no political capital, and cannot be made a matter of speculation, it lacks the popular incentives to favor and patronage.

The Smithsonian Bequest.

A Mr. Smithson, who it is said, was a natural son of the Duke of Northumberland, a gentleman of liberal education, a traveller and a bachelor, who died some time since at Genoa, left his entire estate—for the diffusion of useful knowledge among mankind, and left it to the wisdom of Congress to apply the avails. Mr. Rush has brought from England, \$508,318.46, which has been paid into the national treasury, and most of it vested in productive stocks. The question is now before a committee of Congress, how this money shall be expended. Among other plans of appropriating it beneficially, one has been submitted for applying a part of it to the establishment of a national school of agriculture, near the seat of government, a plan and estimate of which has been submitted to the committee, by C. L. Fleischmann, a graduate of the royal agricultural school of Bavaria. The project is a noble one, and we hope it will be adopted. And yet we fear the contemplated location is a bad one. We doubt if practical agriculture can be taught well, where agricultural labor is considered rather a servile employment. We think the south would prefer to send her sons farther north for an agricultural education; and that the north would not like, for a like purpose, to send hers so far south.

Wool Statistics of Vermont.

Vermont is peculiarly adapted to grass husbandry, and to the culture of the grains and roots for feeding and fattening farm stock. Being mostly of primitive formation, there is not time enough in the soil to render the wheat culture profitable. Indian corn is liable to be injured by the early and late frosts. The oat, the potato, the ruta baga, and we doubt not the beet, do well; but the herbage, and pasture, are peculiarly rich and abundant. Her hills, and even her mountains, afford an appropriate range to cattle and sheep; and these, it seems, and particularly the latter, have for some time, attracted the attention, and very properly too, of her farming community.

It appears from the statement of Henry Stevens, made at the Caledonia cattle fair, in September last, that the whole number of sheep in the state in 1837, amounted to 1,166,234; that if averaging the fleeces at 2½ lbs. each, the aggregate would be 2,915,385 lbs. of wool; that there being 300,000 inhabitants in the state, and estimating that each requires, for all purposes, nine pounds annually, the surplus produced in the state, over and above the wants of her population, is 215,585 lbs. But Mr. S. goes on to state, that Vermont having no manufactures at home, sells her wool to the manufacturers of other states, and purchases her woollen goods in return, either of do-

mestic or foreign fabrication, and pays for them, in the charges of collecting and sending her wool abroad, in converting it into manufactured goods, and in bringing them back into the state, sixty cents per pound over the prime cost of the wool, or in the aggregate, \$1,600,000. Mr. Stevens argues from these premises, that Vermont ought to establish her own manufactures, for which she has capital, abundant water privileges, and all the materials for constructing them. There is no doubt but the suggestion is a wise one, though the benefit would not be to the extent stated. Were the wool manufactured in the state, the fabrics would be principally sold in Boston and New-York, and brought back by the retail vender. The manufacturer could not wait the tardy returns from the local market; the merchant would contrive to make his purchases at the great depots, and even the consumers, such is the force of habit, would buy them the more readily by their being denominated *boughten* goods.

New Agricultural Journals.

The *Boston Cultivator*, has been commenced at Boston, by Mr. Buckingham, one quarter part of which is to be devoted to agriculture.

The *Farmer's Monthly Visitor* has been commenced at Concord, N. H., by Isaac Hill, formerly editor of the *New Hampshire Patriot*, and subsequently senator in congress and governor of the state.

In our young days, while conducting a political journal,—and by the bye, political journals were then less abusive, if not more tolerant, we think, than they are now—we received in exchange, the *Albany Register*, published by S. Southwick, the *Balance*, published by H. Croswell, and the *New-Hampshire Patriot*, published by I. Hill, all then distinguished political journals. These gentlemen are all now engaged in other, and we believe better employments—in improving the moral, social and agricultural condition of their country; and may success and happiness crown their labors; and may others, seeing their good works, profit by their example.

We hail the increased circulation of agricultural journals as highly auspicious to the best interests of our country. Were their circulation increased fifty fold, the country would be proportionally benefitted. Our system of husbandry in the main has been wretchedly bad. It has greatly deteriorated the old settled portions of our continent, and is rapidly exhausting the virgin fertility of the west. These agricultural periodicals are calculated to arrest our downhill course—to expose the errors of our practice, to introduce improvement, and to elevate the character and standing of this great business of our nation. They will produce a benign effect wherever they circulate, and it is the interest of all to endeavor to extend the sphere of their usefulness.

Editorial Pilfering by Wholesale.

We have just received the entire first volume of the "*Ohio Cultivator*," published at Belmont, Ohio, by Thos. S. Reid, comprising 160 pages 4to. On running over the pages, we find that the editor has filled thirty-two of them entirely, and to the amount of five or six more in parcels, making nearly one quarter of the entire volume, with matter which was first published in our paper—either written by the Conductor or his correspondents—and which justice, as well as the universal practice of editors, entitle us to credit for—without intimating that it originated in our paper! If the editor is an old man, he ought to know better, and do better. If he is a young man we hope he will learn, that "honesty is the best policy," the world over. We know of but one excuse—and that is, that the *Ohio Cultivator* may claim to be a legitimate child of the *Cultivator* at Albany—and justify itself upon the principle, that what belongs to the father belongs to the son. Be the fact what it may, we forgive the past, and hope, for the credit of the name, that we shall not have cause to repeat our admonition.

Agricultural Items.

A Steam Plough, of a very peculiar construction, has been invented in France, with which it is said four miles of ground can be excavated, with an engine of only eight horse power, to the depth of a foot, and the breadth of two feet, in a single hour. The earth as it is turned up is thrown into a sort of sail, which throws it to a distance of sixty feet. Its particular advantage is in the excavation of canals.—*Farmers' Magazine*.

Beet Sugar Manufactories.—Bavaria, with a population of a little more than three millions, has eighty-nine beet sugar manufactories in full operation, and many more ready to commence.

Bone Manure.—In a circuit of ten or fifteen miles round Driffield, in Yorkshire, says the *Farmers' Magazine*, three to four thousand tons of bones are brought yearly from Hull, as manure, and this independent of a considerable quantity obtained from the mills at Beverly and Malton. Bones are imported into England from Russia, Sweden and South America. A bone mill has been erected at Waterford, Saratoga county.

The *Turnip Fly*, although one of the smallest, is yet one of the most destructive foes to British husbandry.

The British societies have offered many premiums, and awarded several, for preventives to its ravages, but all to little purpose. At length a patent has been taken out for a machine which it is confidently affirmed will destroy not only the turnip fly, but other insects and their eggs deposited on the surface—by means of steam! A boiler, to generate steam, is mounted on a small pair of wheels to be drawn between the rows. The steam passes through a pipe behind the boiler, into flat conductors which extend along the vacant space between the rows of turnips, and nearly touch the surface of the soil, so that a perpetual strong jet of steam is discharged against the surface of the ground, which it is said effectually destroys the fly in a chrysalis state, as well as the flies themselves, who it is generally believed, throw themselves down off the turnips as soon as they are disturbed by any movement of the plant.

Short Horned Cattle, seem to retain their former large prices in England. Extensive sales of large herds are recorded in the *Farmers' Magazine*. The average prices of cows, heifers and bull calves are from forty to fifty guineas, and some choice cows and bulls have sold as high as 100, 200 and 230 guineas each. The guinea is a little less than five dollars.

Spade Husbandry.—A notable illustration of the advantages of spade husbandry was shown to the Derbyshire Agricultural Society in October, by C. Pole, Esq. Wheat grown on land dug, and an adjoining piece of like quality which had been worked by the plough. The ears on the dug piece were longer, by at least an inch, than on the ploughed, and the product greatly superior. Mr. Pole estimated the product on six acres of dug ground to be worth £207, while that on the ploughed—32 bushels per acre—would be but £120, leaving a balance in favor of the former, after deducting £18 for digging, of £89—\$306.36, or 51 dollars an acre.

Notices of Correspondence.

Rockwell's Corn Planter.—See advertisement in last number. This machine plants two rows at a time, at any required distance, and any required number of kernels in a hill. It makes the furrows, drops the seed, covers it and rolls the ground at one operation, propelled by a horse and guided by a man. It was exhibited at the fair of the American Institute; since which the price has been reduced from fifty to thirty dollars. It is said to be simple in its construction; easily taken apart and again united, and is packed for transportation in a box of five feet by twelve and a half inches, and eighteen inches deep. Address D. S. & F. A. Rockwell, Ridgefield, Ct.

Oil-Cake.—"A new subscriber," inquires as to the value of oil-cake, the mode of using it, &c. We have had but little experience in the matter; yet we know it is extensively used in Britain in fattening cattle and sheep—large quantities being annually imported from Holland and other parts of the continent for this purpose; and that it is also used in the United States for the like purpose. It cost us, some years ago, ten dollars a ton. We do not know the present price. It is a valuable auxiliary in fattening cattle and sheep, and was worth all we paid for it; though the flesh it adds to the animal is rather gross, or of inferior quality. It is given to animals in three ways—ground to powder, broken into small pieces, or reduced by water to a jelly. The first mode is the most common, though we think the last most serviceable. It is fed with roots, hay, &c. in about the same quantities as corn meal.

Improvement by selecting Seed.—George P. Frost, of Ithaca, Tompkins, has sent us two samples of very large corn, *Tuscarora* and *Sweet Corn*, which he says he has greatly improved in size, by carefully selecting the seed for some years. "I have succeeded in enlarging the grains of the *Tuscarora*," he writes, "to nearly double the ordinary size, and I think the sweet corn is three times as large as the grains used to be, and both still retain all their former sweetness and richness for table use." Mr. Frost's closing request shall be complied with, and he may compensate us by sending us a larger sample of his improved corn in the spring.

The Brussa Mulberry.—Mr. Abraham Marsh, of Tolland, Ct. has propounded to us several queries in relation to this species, or variety of the mulberry. Until experience shall enable us to speak with more certainty upon this subject, we must refer Mr. M. to the remarks upon it in our January number, page 188.

More Insect Enemies.—Daniel Andrews, of Meadville, Crawford county, Pa. writes, that, "insects nearly ate up or destroyed much of the last summer's crop. One kind got in the wheat, when nearly ripe, and was threshed out in pecks. At times and places, another kind were seen travelling in thousands across the roads to buck wheat fields, which in some parts were wholly destroyed by them. Another kind attacked the cabbage, at the root and on the leaf. At the roots of some plants, there would be thousands not much larger than pin heads; and the only resort was to get a hen and chickens among them."

The Pea Bug.—The habits of this bug are too well known to need a description wherever they have appeared. But as there are many districts which have not been visited by them, it may be well to remark, that as soon as the pea begins to form, the perfect insect punctures through the pod, and deposits the egg or the young in the pea, which feeds upon the pea, grows and matures, and comes forth the next spring a winged insect. The maggot is in the green pea when it is served up at table, but the great injury to the crop occurs after it is gathered—the insect consuming a great portion of the interior. Mr. Jason Smith, of Tyre, in this state,

has communicated to us his practice for the last four years, which he thinks has preserved his peas from their ravages. It is to stow away his peas, without threshing, till winter. The vitality of the insect is believed to be destroyed by this means, and of course the parent stock. A somewhat similar mode has been adopted, we understand, to smother and destroy the insect, by threshing them as soon as they are brought from the field, heading up the peas in perfectly tight barrels, and keeping them in this state till winter.

Gypsum.—“A young subscriber,” who dates from Virginia, would not be edified, and we fear our readers would not be benefited, by a philosophical disquisition of the question he submits to us. Opinions as to the *modus operandi* of gypsum are various. Even those who ought to know best are not agreed in the matter. Our opinion has been so often expressed in the *Cultivator*, that our correspondent will find no difficulty in gathering it from our volumes. See pages 80 vol. I. 7, 128, vol. III. 55, vol. IV. &c.

Application of Lime.—“N.” who dates at Locust Grove, is referred to pages 104, vol. I. 11, 54, 84, 100, 116, 149, vol. III. &c. for answers to his queries. We remark, however, that the first question to be considered is, whether it is desired to have it operate as *caustic* or *mild* lime; that when applied to sod ground, it should be spread *before* the sod is turned over, in preference to being spread *after*; and that it is seriously injured, as *quick-lime* by being long exposed, in heaps of “two or three hundred bushels,” to the weather; and that if *mild*, or air slaked, it will probably receive little injury or benefit.

John M. Millikin's proposition.—We have received a printed sheet, containing a proposition of this gentleman, who resides in Butler county, Ohio, to raise a fund, by voluntary subscription, of \$1,000, to be awarded in 1842, in three premiums of \$500, \$300 and \$200, for the first, second and third best improved, cultivated and stocked farms in the county. Subscriptions to be received till January, 1840. We have not room for the details; but we think the plan is a good one, and that if carried out with spirit, it will soon add thousands of dollars to the value of the agricultural products of Butler county. There is nothing like competition to accelerate improvement; and the more numerous the competitors, the more substantial the benefit.

Sugar Beets.—Sherman McLean, of Royalton, Niagara county, has raised 400lbs. of sugar beet seed—the roots appear still sound, and he asks if they will produce another crop of seed if they are planted out? Our answer is—they will not.

Sugar Boilers.—We have received a subscription from Joseph P. Plummer, of Richmond, Ia. and his friends, on condition that we publish in our March number, the best construction known to us for a furnace to boil “sugar water.” We give, from perhaps the best sugar boiler in the state, a description both of the furnace and boilers, in another column, under the title maple sugar, which we hope will prove satisfactory not only to our correspondent, but to many other of our readers.

Smith's Contracting and Expanding Cultivator.—A drawing of which has been sent to us, possesses one property not common to any other implement of this name we have ever seen: It may be contracted or expanded at pleasure, while the team is in motion, by the man who guides it, merely by moving one of the handles to the right or left, which is connected by a half inch rod with a cast iron cog wheel, four inches in diameter, which works in two slides screwed to the slats.

Nitre in Steeps.—In reply to the inquiry of James Boyle, as to the quantity of salt petre we use in steeps for seed corn, &c. our practice has been to use half a pint of crude India salt petre to a half bushel of seed. Less would suffice, and more would not prove injurious. We dissolve the nitre in water, and then apply it to the grain.

Society for the Diffusion of Useful Knowledge. We have received sixteen pages of manuscript, in part of an answer to the communication of our New-Hampshire correspondent, in relation to common school libraries. They came to hand too late for this number, but will be inserted in our next.

☐ We thank our Correspondents,

For the valuable communications with which they have enabled us to enrich the columns of this number of our paper, and to render it as valuable, in original matter, probably, as any number we have published. Our communications exceed thirty in number; and, zealous as we feel in agricultural improvement, it seems to us, that some one of them may be made to benefit every subscriber to the amount of his annual subscription. The very excellent communication of Mr. Seely cannot fail greatly to benefit every farmer who has a peat swamp, and is desirous to profit by it. The letter of Mr. Garnett, besides abounding in other useful matter, will furnish useful hints to our northern as well as southern patrons, who would mend their habits and their practice. The articles upon corn crops, the culture of the carrot and ruta бага, are replete with practical instruction. The communication of V.—and we are happy to add that our correspondent has promised a continuation of his favors—will be read with interest by all who are anxious to raise the standard of agricultural education. Indeed, we believe all the mass of matter inserted under “correspondence,” will be found promotive of the great interests of agriculture and education.

And we beg leave to call the attention of *sugar-boilers* to the notice, under maple sugar, of the excellent mode of management adopted by an eminent sugar-boiler of Jefferson county; and also, of our readers generally, to the reports made in the State Agricultural Society and in the Agricultural Convention.

We are drawing out a vast deal of practical knowledge, from the richest sources in our country, calculated greatly to profit thousands, tens of thousands, nay millions, of American farmers—if they will but read, reflect and imitate.

Acknowledgments.—Three very beautiful apples, but not so rich in flavor as some of our old favorite varieties, from an unknown friend, the letter accompanying them having been lost; seeds of the Bayberry, Santafee wheat, and a new variety of corn, from Major Souldard, of Galeana, from plants grown in the Major's garden, some of the wheat produced fourteen heads, beside the central one, upon a single stalk. We hope the opinion that this wheat will prove valuable, may be confirmed—unknown seeds from Columbus, Ohio, and from Mr. Hathaway, Rome, seeds of the “golden squash of France,” described as splendid in appearance, fine in flavor, and of very large size, brought from the garden of the banker Rothschild, at Paris, in 1837. Mr. H. has grown them one year.

CORRESPONDENCE.

On Alternating Crops and the Causes of Deterioration in Virginia Lands.

December 1st, 1838.

DEAR SIR—I have very often had occasion to remark, that the man who ventures to make even one speech in public, has generally to make two or three more, by way of explanation; and so it is by writing. But whether this be owing to the imperfection of language, or to the great carelessness of most of us in studying it, is foreign to my present purpose,—which is to explain, (if I can,) some things in my last letter, which you seem to have misunderstood. First, however, let me assure you, my good sir, in your own language, that no “spirit of controversy” actuates me; my sole object being to elicit truth in regard to a matter highly important to all our agricultural brethren.

You have gratified me much by expressing the belief, that “we were views mutually understood, there would be found to be no great matter of difference between us;” and it is the hope of making that difference still less, which induces me to address you a second time, on the subject of “Rotation of Crops.”

I certainly had no intention to undervalue, and still less to condemn the practice altogether. My design was merely to prove, that its advantages had been most extravagantly exaggerated by imaginative and theorizing writers, who often mistake their own fancies for facts, and thereby have done real injury to our cause, when they meant to do good. To guard against misconception, I declared my belief that “the best system of husbandry is inseparably connected with, and dependant upon both the rotation of crops and manuring; but chiefly the latter.” When, therefore, I stated numerous instances of good and apparently equal crops of the same or similar kinds, having been made on the same land, for a long term of years, in uninterrupted succession;—some with manure, but others entirely without it; I did not anticipate the possibility of appearing, either to yourself or others, to contradict myself. I meant no more than to prove that the rotation doctrine had been extended much too far by its chief advocates, who had thus produced doubts rather than conviction of its real advantages; for surely if it can be violated in very many instances, for half a century, (as you yourself have admitted,) without any discernible injury, the truth of the assertion, that destructive injury takes place notwithstanding, is not yet quite as clearly demonstrated as the fact that “the sun shines daily,” which was all I meant by my objection to your apparently universal rule. As such, I could not admit it; neither could I receive it as any thing more than a conjecture, not sufficiently sustained by actual experiments.

One of my exceptions to the universality of the rotation doctrine, (for I have never questioned its general utility,) was, the constant succession, for many years, of corn and oats in two of the largest counties of Virginia, without apparent injury to the land. To this you answer, “are corn and oats the same crop?” as if I had actually called them so; whereas, I called them only “white crops;” the constant succession of which, on the same land, is forbid by the rotation doctrine. “Besides,” (say you) “the pea, the bean, or the vetch, which always” (not always, but generally,) “accompanies the oat, and which is turned in as food for the corn—is this nothing?” My letter gave the answer in anticipation, for it states that the inhabitants of those counties ascribed the preservation of their lands to the turning under of this natural growth. This you seem to admit, for you ask “is not this virtually a three course system?” I have not denied it. But if so simple a process, forced upon men by their Maker, can prevent the fertility of an extensive territory from wearing out, may not some small indulgence be extended towards the scepticism of those who regard the complicated rotation of crops generally prescribed in our books, as a sort of “king-over-all,” for exhausted lands, pretty much in the same light that they do the innumerable recipes in our old books on farriery, which rarely consisted of less than ten or a dozen ingredients, to cure a horse, even of the belly-ache, when not more than one or two of them

perhaps, were worth a straw. Some medicine I believe to be quite as necessary for *sick land*, as for *sick horses*; but for both I am persuaded, the more simple the restoratives are, the better; and in the case of land that manured without any rotation whatever, is incalculably better, (if they must be separated,) than any rotation ever yet devised by man, can possibly be, without manure; although I again repeat that I deem it best to use both.

Among the proofs I adduced in support of my objection to your doctrine, as I, at first, understood it—that upon which I most relied, was, the apparently equal crops of corn after corn, for a long term of years, without any intervening crop whatever, and without manure of any kind. To rebut these facts, you offer only the general conjecture, that a soil may contain so much of the specific food, either of wheat, corn, tobacco, &c. as to last apparently, without diminution, for “forty or fifty years.” I asked no more to verify the inferences drawn from the facts which I stated; and this assurance I hope will, in a great degree, excuse my dissent from a rule, which you appeared to lay down as *universal*, but which I am now satisfied you intended to be understood as only *general*. In this sense, I am perfectly willing to understand and to treat it; notwithstanding you appear to have treated my exceptions to it, made under a misunderstanding of your intention, as proofs of my unqualified enmity to rotation crops of any kind. If I could misunderstand you, it is nothing remarkable that you should misunderstand me. Far, therefore, very far, am I from imputing to you any design to pervert my meaning; for I have full reliance on your justice, as well as on the sincerity of your wishes, to render every communication to your paper available to the advancement of our cause, so far as you can make it so, in accordance with the principles and notions which first prompted you to undertake that truly valuable work. In thus expressing my cordial approbation, both of your purpose and of the means to which you resort for its accomplishment, I say no more than my feelings and judgment both prompt me to utter. But being personally a stranger to you, this declaration might possibly lead you to suspect, without my earnest assurance to the contrary, that I was attempting “to feed you with soft corn,” in order to deprecate or to dilute criticism, should you think I deserve it. True it is, that I have not quite so strong a fancy to provoke it as the valorous Don Quixotte had for attacking giants, and making an exterminating war against wind mills; but had I feared any severity of remark from your pen, I should have taken the wiser course to keep my scepticism to myself; well knowing that every editor of a public journal, who chooses to rail himself unfairly (as so many do,) of his position, may, in every controversy with others, award the victory to himself. But having no suspicion that you belong to that dextrous class who are always for playing the game of “cross I win, pile you lose,” I shall proceed a few steps further in attempting to explain my former letter, with the hope of reasoning myself, if possible, from the suspicion of utter infidelity relative to the rotation doctrine.

The cases which I stated, of the same garden vegetables, and of cotton appearing to produce equal annual crops, on the same land, for a long term of years, without any discernible deterioration, either of the soil or the crops, were cited to prove that this had been effected without any alternate crop whatever, unless manure could be called a crop; and consequently demonstrated, in these cases at least, that the fertility of the lands and the equality of the crops had been maintained without rotation.

The cases of corn and oats—both “white crops,” although not “the same,” in constant succession, for a still longer period, and without the intervention of any thing but the natural growth of the wild pea or bean, turned under before the corn was planted, were given also to prove, that at least half a century of such a course had been insufficient to produce any apparent diminution in the crops; and the inference I drew from these cases was, not that rotation was altogether worthless, but of less advantage than was generally claimed for it; since here again, it had been found unnecessary, for at least fifty years, throughout a very extensive territory, where the soil did not seem materially different from that of thousands of acres, in other parts of our State. It is true, that I did not call this “virtually a three course system;” but I expressly stated, that the inhabitants themselves ascribed the preservation of their lands to the ploughing under the wild bean or pea, between the crops of corn and oats. Admit they are right, and what does it prove? Why, that this very simple alternation answers quite as well as any of those very complicated and troublesome systems of rotation, with which our agricultural books abound, and by which I have never yet seen any land improved, unless some one or more of the crops which constituted the course were returned to the land, instead of all being taken from it; and unless also, manure was plentifully used during each rotation. Apply this, in proper quantities, to any two crops whatever, either the same or different; this which is to plants what the life blood is to the human body; or make use of lime, gypsum, marl, or ashes, and my belief is, that we need not trouble ourselves much about any system of rotation whatever; although I repeat what I have said before, that some I deem better than none.

The cases of equal corn and tobacco crops, each annually made on the same ground, respectively appropriated to each, with the same result of undiscernable deterioration, and without manure of any kind, were presented as a still more unequivocal proof that the loss of fertility does not occur in every case, as you seemed to

assert; since the life of the longest liver in those parts of our State, to which I alluded, had not been long enough to enable him to perceive it, in the instances which I cited. Your assertion, therefore, that deterioration *does take place in all cases*, where no alternation of crops is resorted to, seemed to me like taking for granted, that which yet wanted proof. Admit these exceptions to the apparent universality of your doctrine, and I shall think with you, that "were our views mutually understood, there would be no great matter of difference between us." Being sincerely desirous to have my own opinions strengthened by yours, I will now endeavor to ascertain in what that difference (if any,) really consists, by stating my own creed as to rotation of crops: not, I assure you, because I deem it of the least importance to any body; but because such statement may excite a further discussion by abler hands than myself, of a subject highly important to all our brethren, and may thus possibly lead them to perceive, that heretofore they have taken for granted, and accordingly asserted, many things in regard to it, which have never yet been satisfactorily proved; just as in our school boy days, when scanning our Latin lessons, we used to tell our masters that such and such syllables were long or short "by authority." Now, although such a reason—if it can be called one, may suffice in lieu of a better, for school boys scanning Latin poetry, I cannot deem it admissible among men who are earnestly seeking the truth in regard to the soundness and utility of any thing recommended to them as a practical rule. Such a thing, unless sustained by well authenticated facts, should never be regarded in any other light, even when most attractively presented, but that of an ingenious and plausible theory. In this light, I confess, (perhaps to my future shame,) that I view many of the alleged benefits of our popular rotation systems. Not one of them, in my opinion, actually *improves land*, unless, as I said before, some one or more crops of the course be returned to it, or unless manure, which cannot properly be called a crop, be applied between them. Their food being derived in part from the soil, and in part from the atmosphere, unless the former gets back more than she imparted of the principles of fertility, deterioration must occur in a degree more or less rapid in proportion to the quantities of food required by each crop to bring it to perfection. The few apparent exceptions I have stated cannot invalidate this doctrine, as a general one, and therefore ought not to encourage us to neglect it entirely. I gave them only to prove that it did not hold good in all cases whatever, since in some it was imperceptible. But some plants require much less food than others, consequently when they constitute the chief crops of a rotation, deterioration advances more slowly, and this is often called an *improving course*; when in fact, it only *retards* that injury, which would be too visible to be overlooked, if the whole or the greater part of the alternating crops consisted of those plants which require most food. *To retard impoverishment therefore*, is all the credit I think due to any rotation whatever, if all the crops which constitute the course, were taken from the land. Could this opinion be adopted by all our brethren, it would certainly, I believe, have the very salutary effect of causing the whole of our fraternity to pay much more attention to procuring manure than they ever have done; for they would all be convinced that mere rotation could do no more for our arable lands than I have stated.

And now, my good sir, before I conclude, let me endeavor to answer the few questions you have asked relative to our poor old mother, Virginia! By the way, they remind me very much of a highly esteemed friend, long since dead, who used to be vastly fond of this Socratic mode of argument, by which he seemed always to calculate on so "penning" a fellow, as it were "in a corner," that there was no escape but to cry out "peccavi." It made no odds to him whether you answered "aye," or "no," he had you either way, with conclusions to suit his purpose.

Your first question is: "have not successive crops of wheat, of corn, or of tobacco, greatly deteriorated some of her once fertile soils?" and your second is "like unto it." It is: "have they not reduced thousands and tens of thousands of her good acres to comparative sterility, to unproductive commons?" To both I reply, that we have, alas! *hundreds of thousands* of once good acres, long ago reduced to "comparative sterility," but not to "unproductive commons;" for they still produce what we call hen-grass, broom-straw, and ever and anon, a starveling pine or cedar bush—the reproachful and melancholy mementoes of ancestral improvidence. But the successive crops to which you ascribe this, are far from being the *only* or the *chief* cause of this lamentable fact. From the first settlement of the country, until within a few years past, the most deadly enemies to good husbandry in Virginia, have been, the *utter neglect of it, as a science—the implicit adoption, by each successive generation, of the practices of their forefathers; the almost total neglect of manures except for gardens; the incessant alternate cropping and grazing our lands without rest; the culture of them in a certain rotation of workings, without due regard to the condition of the soil as to wetness or dryness.* But above all, to the proprietors of this goodly soil generally using it more as the means of gratifying their appetites, their love of show, and the means of displaying it, than sources of future comfort, respectability and happiness to their children, as well as of credit and honor to their native State. The name of ambition, in the olden times, seemed to be, who should have the best sheep and the most company to consume it, with little or no regard to the "material"

of which it was composed, provided these "Nati consummare fanges" were lovers of, and tolerable contributors to, fun and frolic. As long as the plantations held out in furnishing the means of this ruinously merry career, the troublesome study and practice of good husbandry were postponed, like the study and practice of religion, "to a more convenient season." This sir, I sincerely believe, is a true and just explanation of the complicated causes which have contributed to impoverish a vast proportion of our lands, and much to my shame and sorrow have I given it. But I have the consolation to feel assured, that the dawn of a much better state of things, at least in regard to husbandry, is now shining in almost every part of our old State. I fear to inquire how much is owing to the absolute necessity of reform, how much to motives every way laudable, and shall therefore content myself with the fact. There is, however, one cause of the happy change with us, in regard to the efficiency of which I feel so perfectly confident, that I cannot omit to mention it. This is, the circulation among us of our friend Ruffin's Farmers' Register and your Cultivator, which have done more than every thing else towards it. Both are read by great numbers of our brethren, and have greatly contributed to awaken them to a true sense of the vast losses they have sustained by their long and destructive neglect of the study and practice of agriculture. That you may both succeed to the utmost extent of your patriotic plans, is the sincere, the constant wish of, dear sir, yours with esteem,

JAMES M. GARNETT.

P. S. Had I not already given you and your readers so heavy a dose of my scepticism, as to fear to increase it, at present, I should here have offered numerous facts, which I have been more than twenty years in collecting, to disprove the doctrine stated in your November number, from Professor Low, that "it is best to bury manure."

Peat Earth, Peat Ashes, &c.

Wheat-Sheaf Farm, Staten Island, Jan. 18, 1839.

J. BUEL, Esq.—Dear Sir—In your number of this month, page 191, your correspondent B. in noticing "a recently published account of the proceedings of the British Association for the advancement of Science," as to the improvement of peat bogs, and the use of peat moss or turf as a manure, speaks of the preparation of the latter in barn yards, and of expelling from the turf, through that mode of preparing it, the qualities with which it is imbued, when taken from the swamps, *deleterious to vegetation*. I began, some months ago the use of it, in some degree, after the modes adverted to by the members of the association; and have, from information I have been able to obtain from emigrants and my own observation and reading, been led to a series of experiments with it. The results I heretofore promised to your columns. Though not even yet as complete as I hope eventually to make them, I apprehend what I have thus far observed may be useful. I apply the turf in a variety of ways:—First, after the mode of preparing it in compost, directed by Lord Meadowbanks, "which was printed and distributed gratis among the Scotch peasantry, many years ago, and which has ever since been highly approved of both by practical and scientific cultivators," in Scotland, Ireland, and generally in all the European countries in which peat is to be found.—That method has been described in former numbers of your excellent publication, and will be found in all its essential particulars in Fessenden's New-England Farmer and Rural Economist, pages 209 to 212, and in Loudon's Encyclopedia of Agriculture. Composts have been made by me which, when made in strict conformity to those directions, have fully justified them. Through that medium, there is no difficulty in *trebling or four-folding an ordinary farm supply of manure*, and which may (as the authors say), "be used *weight for weight* as farm-yard manure, and will be found in a *course of cropping* fully to stand the comparison." Whenever I have deviated from the track laid down, I have found that the more strict pursuit of the old practice was the better, and have returned to it. In particular, I find the necessity not only of avoiding the compression of the compost heap by the tread of the men or cattle employed, but the expediency of throwing into it every vegetable material which may contribute to keep it light, and as springy as possible. I also find it most prudent to avoid compression by raising the heap above the allotted height.

My supply of turf to this time, has been taken from a swamp about five feet deep, of about two-thirds of an acre, one-half of which, down to the clay subsoil, I have used in composts or otherwise, and which I propose tilling the coming summer. I have also used the turf in *bottoming* my barn and cattle yard, stables and hog sties, and in burning it for ashes. My first application of it to manuring began with the last spring.

The ashes were used, as I have already stated in a previous number, and I can assure you my clover and grass crops fully justified all the anticipations I was authorized to make. Some of my neighbors, of excellent practical information in ordinary matters, attempted to dissuade me from the use of it. A few days before my harvest, I asked them to call and see a result I wished to exhibit to them. Leading them to a stand a short distance from a field to which the ashes had been applied, I pointed their attention to a very visible line, which could be traced across a part of the field, and asked them if they could perceive a difference on its two sides? Admitting it, I asked them to accompany me to it, and to follow the line across the field, observing to them, that for the wheat crop of the preceding fall, the ma-

nuring on both sides of the line, and the seeding for wheat, for timothy, and for clover had been precisely similar—but in the spring, an application had been made to the field to improve the grass, which was found not to be sufficient for the whole field, and had become exhausted on the land at which the line was visible. On examining the course of the whole line, the clover on the side to which the ashes had been applied, even to the last cast of the shovel, was nearly double the height and luxuriance of the other, and far better loaded with blossoms; and here, I said, my friend, is the line up to which my turf ashes, of which you disadvised the use, have been applied. Fortunately in spreading, it run out on this land, and thus has afforded me an opportunity of again advising with you as to its usefulness.

My mode of burning, you also have heretofore described, and my experience has convinced me of the policy of smothering the fire, and burning the turf as slowly, and confining as much of the smoke during the combustion as possible. My heaps are generally four to six weeks in burning. That the turf is *purely vegetable* will be perceived from the fact, that *twenty cart loads* of turf are necessary to produce *one* of ashes. Sand or clay are not destructible by combustion, and would, if present, have been found still the same in bulk, and visible to the eye; none however can be discovered in the ashes; and this may be considered as a fair method of testing the question as to how much of mossy earth the turf contains.

Your correspondent B. in your last number queries as to the application of sulphuric acid for converting turf into manure, and for fertilizing a turf soil. This induces me to call attention to facts which have ever been witnessed by me—around almost every opening of the heap, through which the smoke issues, an oily substance resembling sulphur will be perceived. Bottoming before covering them with litter, the shelters, under my barn and sheds, as I always do, to the height of about twelve inches with turf, in order that it may absorb the stale and moisture of the place, I have observed that, though the turf, when taken there dry from the swamp, is perfectly devoid of all smell; after having thus used it, it becomes as *sensibly acid* to the smell, as the most sour lemon. In turning it over, the acid exhalation cannot but be perceptible to every bystander.

All writers upon turf, in speaking of its antiseptic properties, say it is imbued with a phosphoric acid, having some affinity to gallic acid or tannin, and which renders it, in that state, anti-putrescent, and consequently deleterious to vegetation. It will dry rot and pulverize, when exposed to the air, and is in that state pernicious, because it has not gone through the fermentation necessary to render it soluble, and fitting food for plants. The *fermentative* decay and solution of vegetable and animal substances, afford to vegetation its proper nutriment. The turf, it will be perceived, when used in compost, and in contact with fermentative manures, *attracts to itself and absorbs* so much of the putrescent exhalations as is necessary to expel the acid which checks its decay, and to superinduce, as a consequence, its own fermentation and decay, in common with the manure placed in juxtaposition with it. If this then be a tendency of the turf in the compost, *why should it not operate similarly*, though in a lesser degree, in the earth to which the turf is applied, and so far from affording nutriment to surrounding vegetation, attract it to itself, and absorb the putrescent or fermentative substances already in the soil? In the first instance, it was always said, and is no doubt true, that the turf, while saturated with the acid, is deleterious to vegetable growth and to the soil—remotely, and after having, within the soil, taken to itself what will promote its decay, it probably gives it back, and does become in some degree beneficial as a manure. It well may be that sulphuric acid will, by its action on the turf, accelerate the souring to which I have adverted, and thus promote the decay of the turf. Turf was, for a long while, the source of disappointment as a manure, until the principles applied to it by Lord Meadowbanks, were scientifically explained and brought into practice.

In the spring and in the fall, immediately after carrying out the supply of manure from my cattle yards and hog sties, I bottom them anew with turf to the depth of at least a foot, covering it with six inches of sea-weed or drift. To the accumulation of the place, during the rigors of the winter, and when little is to be lost, in fermentative manures, by solar heat or evaporation, I cart around the yard and spread on its *upper edges*, some eight ten or more feet wide, the emptyings of my stables and yard sheds, with the littered surface occasionally of my hog pens, (which are placed in the centre of my barn-yard.) The feeding racks and moveable pens are from time to time shifted, that the turf and sea-weed may, by the tread and droppings of the cattle, and the occasional moisture of the yard, be worked together, and the turf saturated with them as much as practicable. The main part of the manure, being placed on the upper sides of the yard, in settling down to the centre, and towards the barn-yard drain, passes necessarily through the bottoms of the turf and sea-weed, which thus becomes imbued with the substances necessary to prepare them for the fermentative decay, which the acid of the one, and the saline impregnation of the other, require for them. In the spring, as soon as solar heat may induce a tendency to fermentation, and consequent evaporation and loss, the yards are turned over with a plough or the shovel, that the whole may be so commingled that the turf may attract and absorb the waste which would otherwise ensue. At the lowest part of

the barn-yard, and that to which every thing from the farm house, kitchens, and farming yards, and stables tends, I have a cemented cistern, or tank, capable of containing 250 hogsheds. The wind-mill and horsepower of the yard is connected with this tank, by pulleys, straps, and chain buckets, so that if during the winter, spring, or summer, I think best to wet my compost heaps, hog-sties, or any of the yards with those drainings, the power is conveniently applied, and by leaders, the draining is thrown back to settle again through the mass and return to the tank. The compost yard adjoins without the barn yard—is so graded that if the drainings from the tank is thrown on to the heaps, after settling through, they return by box under-drains, into the yards and tank. If a surplus is still on hand, a cart, a hogshed and sprinkler is used, with which, in a four to one diluted state, I irrigate such grass lands as I think may be benefited by it, or my grain crops, in such parts of a field as I apprehend may want it—an excellent method of readily adding to the manure, and of forcing those parts of a field which in the spring are perceived to want manuring—or my garden is fertilized and forced with it, to any state of fertility which can be effected by such an application of the stringent and most prompt in its influence of all manures. The last spring, in spots where my wheat did not thrive comparatively, applying it with a watering pot, the grain advanced and outstripped the surrounding parts of the crop, which before had afforded better promise of thrift. Pouring a pint of it into a hill of corn, of potatoes, or of vines of any kind, will be found to give an astonishing impulse to them.

The filling and driving of the cart—of sprinkling it on the field, or applying it to the hill or garden, is the work of the barn yard power, a boy, horse, cart, sprinkler and watering pot. The cart and its sprinkler, in its form and use, is in all respects like those in use in cities for sprinkling the streets. To irrigate and manure drilled crops, the sprinkler should be taken from the rear of the cart, and two of them should be hung parallel with the shafts and over the drills.

During the heavy rains of the fall and spring, should the drainings of the yard accumulate and fill the tank, and not be otherwise wanted, the surplus is let off into a muck road embanked on the sides and filled to the depth of ten to fifteen inches with sea-weed, turf, turf-ashes and a small supply of manure, and made gradually to percolate and settle downwards, through a distance of from four to six hundred feet in length, and twenty in breadth, and through which muck road cattle, carts and vehicles of every kind, when it is not too wet, are forced to find their way, the better to commingle and break up together its contents with the drainings of the barn yard. Until the drainings of the yards have reached the farthest extent of this road, they must escape from applications to agricultural uses. Before driving my cattle from my yards, if it becomes necessary to do so, and always two or three times a day, when its surface is moist, a boy, as a standing order and practice, drives them for exercise several times around the yards, the better to bring the manure in contact with the bottomings. I have other modes, not here explained, by which I readily avoid the access to my yards and tank, of the excess of drenching rains, when storms are heavy and of long duration. This I may explain, if desirable, on another occasion. Within the last year, I have lost none—absolutely none!—of the leeching of my yards and stables.

To this it will be said by some, it is laborious and expensive. Not so much so as may be apprehended, or as would occur with others not assisted with mechanical powers and under-drains, as I am; but what I have thus done at some expense, others may do in a great degree at a mere trifle of expense, and in a way that I may hereafter suggest.

I assume, as a standard, the fact that farmers with us pay 8s. per load for manure, and that is a criterion by which to form an estimate of the labor or capital which may profitably be bestowed in obtaining it as I do. If that be the true criterion for judging, every day's labor I expend in producing it, is worth twenty fold the sum I pay my hands to effect it.

Turf affords an incalculable medium for saving the waste of manure, and for increasing its amount and usefulness, and is better than rich mould, earths, or the peatlings and bottoms of ditches, in this—that it is all vegetable, and in itself, strictly speaking, a manure, when properly prepared.

The contents of stables, barn yards, and cattle and hog pens should never be exposed to the solar heat, or to fermentative evaporations, or its drainings lost, when turf, or any inert vegetable substance, or surplus farm materials of a vegetable or animal nature abound; nor should animal substances, fish or any other, be suffered to waste their effluvia in the air, when such materials can be had. Enough out of the soil, for all useful purposes, of the agricultural influence or effect of manure is produced as soon as vegetable or animal decay is sure to progress. From that moment, a compost should be resorted to, and the heat and action of the manure (which is sure and irresistibly powerful,) be brought to act on substances to which this propensity has not been sufficiently imparted. In this state, all that is ordinarily wasted acts to a useful result in augmenting the mass—and it will be perceived, on referring their ideas as to all fermentative manure, to the principles of Lord Meadowbanks as to turf, that they are far more beneficial as to their substances, not so strongly resisting putrescent decay.

It is a common practice to bury fish, preparatory to

their use as a manure, in common raw earth. The most soluble of ordinary manures, it is soon dissipated by atmospheric action, and leaves on the soil to which it has been applied, a raw earth in its then condition injurious to it. I find it far more beneficial to bury the fish in turf and in turf ashes, seven loads to one of fish, (in London it is said, of turf alone, even 20 to 1,) which the decay of the fish will make an excellent and very powerful manure, and one which will endure long after the fish will have done their office in the soil and disappeared.

But I perceive I am making my letter so long as to trespass on your columns, and will stop, only adding, publish all, or such parts of it as you please, and if you desire it, more anon. Yours very truly,

W. W. SEELY.

(3-We do desire "more anon."—Cond.

Carrot and Ruta Baga Culture.

Richland, Oswego co. Jan. 22, 1839.

J. BUEL—Dear Sir—Agreeable to your request, I send you a few lines, describing my method of cultivating the carrot and ruta бага. My opinion in regard to profit, is in favor of the carrot. As to the relative value, I have entertained the opinion, that the same weight of carrots is worth, for stock, nearly double that of the ruta бага. I fed my work horses on carrots, from November, 1836, till June, 1837, three span; they remained in good plight, and performed as much as I ever had any within that length of time—they ate no grain—nothing but hay and carrots, thrown whole into the manger. I have raised one thousand bushels of carrots or over, yearly, for three years past, on an acre of land.

In 1836, I raised between two and three thousand bushels of ruta bagas. They produced from six to seven hundred bushels to the acre. They grew very large—the largest one weighed 30½ pounds. The land was stony and gravelly, made mellow and ridged high with the plough, two and a half feet or over apart from centre to centre. The seed was planted about the 10th of June, which I found to be late enough. Method of planting—one man goes forward with the hoe and makes marks for the seed, in the centre of the ridges, about twenty inches apart, which is very quick done, nearly as fast as a man would walk; another man follows as fast with the seed, and drops from four to five seeds into the place with his thumb and fore finger, and covers the seeds at the same instant, with the remaining three fingers. In this way I think a smart man would drop the seeds and cover two acres a day.

The same year, 1836, I raised one acre of carrots, which produced over one thousand bushels. I measured one rod of the ground, where the carrots appeared to be the best—the produce of this rod was at the rate of over fifteen hundred bushels per acre. Multitudes of carrots from this acre measured four and five inches in diameter at the but—the longest one that we found measured over two feet. The soil was deep, gravelly and stony, originally covered with large sugar maple, interspersed with large bass and hemlock. I cannot admit that the whole expense of labor on the one acre of carrots, including the harvesting, was over thirty or thirty-five dollars. The land on which they grew had been occupied the year previous with carrots, potatoes, corn, ruta bagas, beans, and other garden sauce, and manured with long manure on the one half, and hog manure on the other. Between the 1st and 5th of May, (it having been previously deeply ploughed,) I commenced work in the morning with six or seven men and boys, three horse team ploughs and harrows; at 12 o'clock, M. the same day, the planting was finished. I have no doubt that Judge Buel, had he been present, would have considered the planting of the seeds to have been slightly done, but the crop was a good one, being one thousand bushels or over per acre. First we ploughed the ground very deep, and harrowed the furrows level; then took each man his hoe, reversing the edge of it, and expeditiously scraping or dragging the hoe along the surface of the ground twenty or twenty-four inches apart, bearing on the hoe sufficient to make a large mark or track, and to remove the stone and other incumbrances from the track or drill; and so on back and forth until the whole acre was marked out in drills;—then each man or boy took a small dish with seed in one hand, and stooping down so as to bring the other hand as near the ground as may be, to prevent the wind from blowing the seeds out of their place—walking quick-step, each one sowing the seeds according to their own good judgment—having previously received a good lecture from the master not to strew the seeds too thick. When this was done, each man took the hoe again, and half reversing it with the edge up, went through again with an increased movement, gently puddling or stirring the soil in the centre of the drills. A piece of board or stick four or five feet in length, will answer this last purpose about as well as a hoe. A great part of the seed sown by some farmers, is lost by deep covering. A shower of rain will fetch them up without any covering, where the soil is loose and well fitted. The ground between the drills ought to be brushed over with the hoe immediately after they begin to come up, or before, if you can see where the drills are, so that you can avoid disturbing the carrots.

I think a man may cultivate three acres of carrots with the same amount of expense and labor, by keeping in advance of the weeds, as he can one acre in the common way, with the weeds in advance of him a number of days. When the carrots get up ten or twelve inches high, I plough between the rows with a horse, again and again. When I harvest them, I run a strong team and plough as near the outside rows as possible, and

very deep, turning the furrow from the rows; the hands follow after, and pull them out by the tops with ease, a number at once, and throw them in heaps; and so I proceed until the piece is finished. If there was any difference in the crop, it was in favor of that part where the long manure was spread the year before. I planted the same piece, in 1837, without any additional manure. The crop was about one-quarter less. I have no doubt that it would be a great benefit to our farmers who keep stock to cultivate the carrot, especially for milch cows. To those who are not experienced in the cultivation of the carrot, I would say, sow your seeds in drills, at least twenty or twenty-four inches apart; the earlier in the season the better, if your land is in good order; if they stand thin in the drills, they will be large; if very thick, it will spoil the crop. Respectfully yours,

THOMAS S. MEACHAM.

Horse Harness.

Canaan Centre, January 15th, 1839.

SIR—The object of this communication is to call the attention of farmers to the inconvenience and needless expense they incur in using the kind of harness, for their common business, at present mostly in use among them. We are too much the slaves of fashion; and instead of studying economy, or our own convenience, in endeavoring to keep pace with the rich, or those in higher or different situations in life, we are often found with articles of dress or equipage, far from being convenient for our business or appropriate to our condition. It probably does not occur to many, that the harness used fifteen or twenty years ago, was more convenient, less expensive, and more enduring than that mostly used at the present day; being calculated for business instead of pleasure. The most objectionable part of the harness now used is the breeching, which was never calculated for heavy loads, and is very unsuitable; horses not being able to back or hold a load with half the ease as with those of the fashion of by gone days. The fashion of the breeching now in use, was introduced into this country from England, some forty years ago, and was called the phaeton breeching; the name indicating an article for pleasure rather than convenience, yet we have almost universally adopted it for all kinds of heavy work. The Pennsylvania, or Dutch breeching, is far cheaper on account of its durability, than the phaeton, and far better adapted to the ease and convenience of the horse in any situation. Martingals, gags and checks, are also very objectionable for a business harness; tending to confine a horse to one position, and of course curtailing the free use of some of his muscles; and requiring greater exertion in others, adding much to the performance of what is required of him. It appears to me, that it will require no logical demonstration to convince any reflecting mind, that where great muscular exertion is required, a free and unfettered use of all the muscles, as far as circumstances will admit, is very important. The cheapest, most convenient, and durable harness, is made with leather tugs from the hame to the hind flank, about three feet long; with a ring in the end. Pennsylvania breeching, with a leather strap from the ring of that to the one in the end of the tug. Chain traces, with what is called a T, on one end, which goes in at the ring on the end of the tug. Whiffletrees, with rings at the ends, the traces passing through them and hooking to any required length. Scotch collars, iron hails to hold back, and wire snaps on the lines. Many farmers suffer much by neglecting to oil their harness seasonably and properly; though once a year, if done as it should be, is generally sufficient. The best way is, after the harness is taken to pieces and cleaned, to have a kettle of warm water and put your oil into that; then dip in one strap at a time, taking care to let the oil close up to the strap as you take it out. It will then require rubbing off with a dry cloth, and will remain soft for a year. The water should not be so hot as to scald the leather. Neats or pigs foot oil is the best; next to that, fresh butter if you can afford it, if not, hogs lard. Many farmers suppose nothing so good as curriers oil, but that should be the last used. Harness not used for a year or two, is greatly injured by becoming hard and cracking; for that reason, a new harness lying idle for any considerable length of time, is not worth as much as one carefully used the same length of time. Yours respectfully,

DANIEL S. CURTIS.

Corn Crop.

Trenton, Oneida County, January, 1839.

JUDGE BUEL—Sir—Enclosed I send you a statement of a piece of corn and potatoes raised by me this season, which I offer for a premium, tilled according to the directions of your valuable paper. I hired two acres, (not owning any myself,) of old meadow land, for two years at \$6 the year per acre, with what manure I wished to draw on it. The soil is a strong gravel. I drew on manure two days, about 28 loads of the coarsest I could get in the yard; some of it dry straw, and spread it even. I ploughed, rolled and dragged it well, and marked it out three feet each way, in fine order, and planted on the 17th of May three hundred rods with eight and twelve rowed yellow corn, six and eight kernels in a hill, the seed dry; the remainder I planted with pink eyed potatoes. When the corn came up I put on sixteen bushels of lime-kiln ashes; in a few days I run the cultivator through both ways and commenced hoeing; as soon as the hoeing was finished I put on two hundred of plaster; the second hoeing soon followed the first, when the plants were thinned to four in the hill. I intended to give it a third hoeing, but the corn was so rank and stout I could not get through without damage to the

crop. The hoeing was done well and the surface left as level as possible. The potatoes were hoed at the same time and hilled. I gathered ten bushels of seed corn the last of August, which was dry and hard. I cut up, shocked, husked and housed my corn and stalks in September. My stalks are bright, and much better fodder than hay. I have enough, I think, to winter two cows. My corn is all sound and hard; the product of the two acres is,

10 bushels of seed corn, worth \$2 per bushel,	\$20 00
161 bushels market corn, weighing 61½ lbs. the bushel, sold for \$1 per bushel,	161 00
23 bushels of nubbins fed to hogs, worth 87½ cents per bushel,	20 13
40 bushels potatoes worth 31 cents per bushel,	12 40
1700 bundles of stalks,	16 00
500 pumpkins,	5 00

Value of whole crop,..... \$234 53

EXPENSE OF WHOLE CROP.	
Use of land,	\$12 00
Drawing manure two days,	4 00
Ploughing land,	5 00
Rolling, dragging and marking,	2 50
Planting, three days,	2 25
16 bushels lime kiln ashes,	1 60
Putting on ashes,	75
Horse and hand with cultivator, three and one fourth days,	3 25
First hoeing, six days,	4 50
200 lbs. plaster,	50
Second hoeing, four days,	3 00
Cutting up and shocking corn six days,	4 50
Husking, twelve days,	9 00
Housing stalks,	1 00
Digging potatoes,	1 13
Thrashing corn,	3 00

Expenses of whole crop,..... \$57 98

Value of one acre,..... \$117 26½
Expense of one acre,..... 28 99

Nett profit of one acre,..... \$88 27½

JAMES PARKER, Jr.

I hereby certify that I am personally acquainted with the above named James Parker, Jr., and believe him to be a person of veracity, and that the truth of his statement may be depended upon.

WHEELER NEWTON, Justice.

From my own observation of the above mentioned crop, I consider the above statement correct.

NATHAN COB, Justice.

Corn Crop.

J. BUEL, Esq.—Dear Sir—I send you a statement of the expense and product of one acre of ground, planted with Indian corn, the small eight rowed yellow variety, together with the mode of cultivation.

Soil and Culture.—The soil a sandy loam, ploughed the first day of May. Sward, which was timothy, and mowed the summer previous, laid flat though not deep; then carried on thirty wagon loads of unfermented manure, rolled and harrowed the ground well, without disturbing the sod. On the 12th and 14th planted the corn, two and a half feet between the rows, and sixteen to eighteen inches between the hills; seed simply wet and plastered; ashed when it first made its appearance; hoed the 11th June, and again dressed with ashes. About the middle of July hoed it the last time, making two hoeings, without hilling the dirt up around the corn any, or but a very little.

Harvesting.—Corn cut up about the middle of September, and shocked in small shocks; the first of October husked and measured.

Product.—Seventy-seven bushels sound corn, and five bushels pig or poorish corn, that grew on the suckers, for they were not taken off, as I did the year before, because my corn stood rather unsound from the fact that it was partly covered by a hired man.

EXPENSES.	
One day ploughing and boarding,	\$2 00
Rolling and harrowing, one day,	2 00
Seed and plaster,	0 75
Planting, two days,	1 50
Hoeing, three days,	2 25
Horse and hand, two days,	2 00
Cutting and shocking,	0 75
Husking and housing,	6 00
Ten bushels ashes at one shilling,	1 25
Interest on land,	3 50
Thirty loads manure,	\$7 50
Carting and spreading,	7 75

\$15 25

Deduct for succeeding crops in rotation, 10 00

5 25

Total charges,..... \$27 25

VALUE OF PRODUCT.	
30 bushels seed corn,	\$60 00
47 bushels sound corn,	47 00
5 bushels of pig corn,	2 50
4 loads stalks,	8 00
2 loads pumpkins,	2 00

\$119 50

Deduct expenses,..... 27 25

Nett profits,..... \$92 25

HENRY HOPKINS.

I hereby certify that I am personally acquainted with the above named Henry Hopkins; believe him to be a person of veracity, and that the truth of his statement may be depended on.

HARVEY BUTTS, Justice.
Laurens, Otsego Co., N. Y. Jan. 15th, 1839.

Morus Multicaulis.

JUDGE BUEL—Sir—Since our communication to you in September last, on the subject of mulberry cultivation and silk growing, we have received addresses from nine different states and several from each state. All these give credit to the columns of the Cultivator, as the organ through which they were informed of our location and business, and many other addresses from the same states, have given equal credit to the Genesee Farmer.

These addresses in general, appear to have originated with men of science, property, talents and enterprise. And considering these a criterion of the hundred addresses received by yourself and others on this subject, it is a sufficient guarantee for us to conclude, that this business being in such hands, the most skeptical need have no fears of its ultimate success.

For our own part, we are fully satisfied that the silk culture will progress with those who are qualified to appreciate its worth—but to make it more general as an acquisition to the state, it needs legislative aid.

We are therefore, strongly impressed with the opinion, that our legislature will not be last or least in its encouragement to this national movement.

We hazard nothing in saying, there is no agricultural project or domestic enterprise, which appears so feasible and promises so much to the American nation, as the cultivation of the mulberry and raising the silk-worm.

A number of our correspondents have solicited from us, our manner of cultivating the mulberry; the best kinds of earth, inclination, &c.

We are young in this cultivation in comparison with some others, but having succeeded fortunately in the little we have done, we cheerfully give a partial synopsis of our former practice and future intention.

We have had but one location, and that a little elevated; has a southeasterly inclination, soil a sandy loam.

We prepare the ground for trees the same as for corn—furrows six feet apart sufficiently deep to receive the roots of the trees; lay the trees in the furrows, roots the lowest, making the most natural disposition of them we can, in this almost horizontal manner cover the roots and pack the dirt around them singly—cover the trunk and limbs about an inch and a half to two inches deep, leaving a hollow in the furrow to fill up after the buds have vegetated sufficient to want hoeing.

For layers or cuttings, prepare a bed as for onions, and for layers mark off drills from three to four feet apart; lay the limbs in these drills, cover from one and a half to two inches.

For cuttings make the rows from two to three feet apart, sticking down the cutting from one to one and a half feet in the row, place the cutting in an oblique direction—inclination to the north—angle about 45 degrees—upper bud on the north side of the cutting, a little below the surface.

For one bud cuttings, pursue the same course as with the upper bud of the second bud cuttings, crowding it a trifle deeper.

Water all at evening, according to circumstances, sufficient to retain a rational moisture that would be proper for other vegetables.

We intend removing to Long Island, near New-York, as soon as navigation will permit after the first of March. All communications, therefore, addressed to us, after the opening of the navigation, should be directed to Brooklyn, Kings county, Long Island. Yours with respect.

S. E. GIBBS & SON.

Troy, Feb. 11, 1839.

Multicaulis.

Cozsackie, N. Y. January 30, 1839.

Mr. BUEL—Sir—Permit me to suggest to you my views as regards the Morus Multicaulis mulberry. I have noticed in your publications, at different times, remarks upon them, and representing them as being too tender for our climate, and freezing to the ground in winter. In this I am ready to agree with you, from the experience I have had in them for the last four years. Yet there are good qualities in them, which ought not to be forgotten; and such as stimulate every one who expects to make silk to propagate them. I do not consider their freezing to the ground any objection; as the roots do not freeze; but they shoot forth a greater number of sprouts, and bear larger leaves than older trees, and are more convenient for gathering, as a person may stand upon the ground to gather them. I think these and other advantages they have over the white mulberry, are sufficient to encourage all to propagate them. In this way they may be propagated in hedges or rows, and if the sprouts are wanted to propagate from, they may be cut to the ground every fall without injury. Of the few I have cultivated for the last four years, I have lost but one root. Yours with respect,

W. S. JACKS.

The Bur Oak.

Lake C. H. Ia. Jan. 25, 1839.

J. BUEL, Esq.—Dear Sir—Your note of the 31st ult. is received. I shall send a box or bunch of the Bur oak acorns to you for your own use and distribution, at the

first opening of navigation in the spring. If they will grow, I shall feel proud of having introduced a new variety of tree, and a good one, into your section of country. The tree requires a very strong soil. I am now using in my family, pork fattened upon the Bur oak acorns, which is to all appearance as good as corn fed, except it is more dry and less inclined to fry out much fat. The timber, too, when seasoned, is the most solid and strong of all oaks. The tree, when in foliage, is one of the most beautiful in the forest, though it does not grow commonly in "thick timber;" but it is found covering very large tracts of land called "barrens," an intermedium between prairie and timber; after growing so isolated as to have the appearance of a scattering orchard and having a strong resemblance to the work of man. You may travel miles before the country is settled, through these "barrens" with a carriage, without any obstruction. In these barrens the trees never grow large—the soil being deep, the roots are situated so far below the surface that they offer no obstruction to the plough, and these barrens are often ploughed without removing the timber. I remain your friend truly.

SOLON ROBINSON.

School Libraries.

The introduction of libraries into our common schools is becoming daily, a subject of deep interest. Among the libraries presented to our notice, is one selected and prepared by the American Sunday School Union, of which we have only space now to say, that it consists of one hundred and twenty-one volumes, on a variety of subjects; neatly printed and bound, accompanied with fifty descriptive catalogues, and the whole contained in a substantial case, at the low price of thirty-three dollars.

That a highly beneficial influence may be obtained over the minds of the rising generation, through the medium of good books, is beyond doubt, and every one will see the propriety of our urging upon those who are empowered to procure libraries in their respective districts, that they be careful in their selections. We commend to their notice the above mentioned library.

They may be procured of Mr. E. H. Pease, No. 82, State-street. M.

NOTE.—We give the above, as we received it, without meaning to adopt its sentiments. We have yet seen no catalogue of a common school library, that we felt willing to recommend for that purpose; not on account of what it does contain, but of what it does not contain.—Cond.

Hints to Silk Growers.

From a Female Correspondent.

SIR—Some years since I was an inmate of a house where the mistress was engaged in the cultivation of silk; without having any fancy for the employment, I became curious on the subject of its introduction into this country, as a new branch of industry. I read whatever I could find upon the subject; among other things, Arthur Young's tour through the silk districts of France, made for the purpose of ascertaining whether it could be introduced into England to advantage. He decided that labor was too valuable in England, and I argued that surely then we could not compete with France, Italy and China.

But in reading an account of the growth of silk in China, I learned that the finest made in that country was grown in the southern provinces, where, from the mildness of the climate, the worms were put out on the trees, and left to feed and provide for themselves agreeable hiding places for their cocoons; upon this circumstance it is observed, that the perfection of spinning greatly depends. For a worm, if not satisfied with its position, will change its location several times, spinning a little in each place, and so wasting and tangling the thread; sometimes, when not very well provided, two or three will insist upon working in the same envelope, and so spoil all their cocoons.

Worms are apt to be injured by heavy rains, hot suns, dews, and loud concussions of thunder.

It therefore occurred to me, that a shed, constructed like a rope-walk, would fully protect hedges of mulberry trees, during the time the worms were out, so as to allow them to be at liberty as they are in the south of China; feeding themselves and selecting their places for spinning. The sheds should have a coarse, cheap roof, divided say every eight feet, each part hung at the top, on strong wooden hinges, upon which it should turn entirely over and hang down on the north side, so that when the cocoons were gathered, the trees might be, for the rest of the year, exposed to the rain and sun, with a shelter from the extreme cold of the north wind. The great interest lately expressed on the subject induces me to make these suggestions, in hope that some one of the many speculators employed in the business may gratify me by making the experiment. Much fewer trees would be necessary than when they are stripped, as a large portion of the leaves are left by the worms, and so wasted; it saves the labor of feeding them, and certainly will be less expensive than taking up the mulberries like cabbages, in the winter.

Respectfully yours, &c.

M.

Belmont, Va. January 26.

Inducements for entering on Rural Pursuits.

MR. EDITOR—We were pleased to see, in looking over a late number of the Cultivator, a circular addressed to the public, on the subject of an agricultural school. We hail with joy, the establishment of such an institution, and we trust the proposal will meet with such favor

from the public, as will enable it to be carried into early operation. It is time something effectual should be done to remove the flood of ignorance and prejudice that has covered the face of a large portion of the agricultural community, for the last half century. The system of agricultural societies, with annual exhibitions, and the unwearied labors of agricultural periodicals, have undoubtedly accomplished much in raising the character of the farming community, and all praise is due to them for it. But we fear, that without farther aids, their utmost endeavors will fail of the object they have in view; the production of a healthy tone and liberal spirit among our farmers. The strong conservative feeling among farmers generally will still, we fear, as it has in a great degree already, prove too strong for them to cope with single handed. They must be backed up by the community at large. This correcting an error here, and an error there, this ousting old systems of culture by the partial introduction of new ones, this union of science with practices in husbandry engendered in ignorance, and established by lapse of years, which is so often attempted, cannot, we believe, produce a thorough going reform. It is too much like healing the sores and plague spots that break out upon the diseased body, without attempting to remove the malady that causes them. The evil must be probed to the bottom. Instead of resting our hopes of success in the regeneration of agriculture, solely upon the issue of a struggle with the fondly cherished errors of a majority of our farmers, we must raise up a race of farmers, who never shall have known such errors, and who, by the aid of science and education applied to agriculture from the very outset, as a regular profession, shall be enabled to look upon the culture of the soil with the respect it deserves, to feel its beauties and see its importance to the whole community as well as to individuals.

We hope to see the many inducements for entering into and making agriculture a regular profession, which presents themselves to the thousands of young men of the present day, who are in doubt as to the calling they shall select, set forth by some abler pen than our own; and that very many will be persuaded to avail themselves of the advantages of such a school, in the event of its establishment, to prepare themselves for an honorable and useful pursuit. If, in the selection of their profession, the desire of contributing the greatest amount of good to the greatest number, enter at all into their consideration, let them think well of an agricultural life, before they decide. Let them remember that the avenues to almost all the other pursuits, mercantile, literary and mechanical, are choked even to their very entrances, and that crowds have already entered them fully able to fill their highest stations, and carry off their honors and emoluments. Let them remember, that while to all other pursuits the all pervading influence of education and science has been fully extended, the agriculture of our country, from the absence of that influence, remains almost where it was a half century ago, and that the discoveries of science can be applied here with as wonderful results as they have been in other professions. The trouble is not that too little is known as to the great principles, that should govern agriculture; but that too few know them. The wants of the farming community do not so much demand new improvements and discoveries, as an increase of those, who by their example and precept, may induce others to adopt what is already known.

The researches and labors of a few have amassed information upon the culture of the soil, sufficient, if properly applied, to cause the whole face of our country, to wear the smiles of a garden; and public interest now calls for those, who by the application of this knowledge in every part of our land, may induce all engaged in agriculture to yield to it, and thus render general its influence. Let those who are in doubt as to the choice of a profession, remember, that in taking up agriculture, they have a wide field for action. From the nature of our country and institutions, we must, to a very considerable degree, be an agricultural people; and, as we have already said, there is no one pursuit, that stands so much in need of the aids of science, and the assistance of men professionally educated for it. If, therefore, they would have their names connected with the best interests of their fellow men, if they are ambitious of a reputation that shall be as lasting as honorable, let them become tillers of the soil, and prepare themselves for the duties of the farmer with the same zest and care that they would bestow upon any of the literary professions. And let them also bear in mind, that in agriculture, as in every thing else, as far as their own individual interests are concerned, their success will be commensurate with the amount of information and degree of application they bestow upon the objects that engage their attention. "*Seges vobis respondit.*"

The subject may be presented in a different, and perhaps to some, a more pleasing aspect. We speak without the slightest regard to the fanciful pictures of the poets, of rural pleasures, pretty visions of shepherds and shepherdesses, meandering streams, and lover-like grottoes, &c. &c., when we say, that there is scarcely any pursuit that exerts, in an equal degree with that of the farmer, an elevating and refining influence upon the mind, connected with the most unadulterated pleasure. Removed, as it is, from the contracting effects of business and the corroding influence of political strife, it opens one of the grandest fields for the study and admiration of nature's works. The study of her operations, and a knowledge of the laws that govern her, are pre-eminently necessary for any success in agriculture. And what is more, we deal with animated nature. The

smallest plant that grows, as well as the animal that demands our constant care, is endowed with vitality, and while it lasts, presents all the curious and wonderful changes incident to life. The creatures that Providence has made dependant on the farmer's care, all possess an individuality; and we soon learn to study and honor their various characters. Indeed, in every department of agriculture, the educated mind may find ever changing material for study and admiration: it is constantly "looking through nature up to nature's God." It deals with subjects beyond the influence of men's passions and prejudices, and is led daily to perceive the littleness of all things human, compared with the least of God's works.

If there be any then, of those still casting about them, in doubt which of the many vocations to enter, who have a taste for rural pursuits, let them gratify that taste, and believe that in so doing, they will at the same time consult their own interest, and that of the public. Let none, in the consideration of this subject, limit their ideas of agriculture, as is too often done, to the plough-tail and the harrow, and suppose that the farmer's operations extend no farther than to the use of the spade and flail. If they do, they will deceive themselves, and do the subject great injustice. Let them rather, if they have no other means of judging, turn to some educated, liberal and high minded agriculturist, if any such they have among their acquaintances, and take a few lessons from his word and example, before they come to any such conclusion. We believe they will find him enjoying the true "*otium cum dignitate*," drawing upon nature rather more for his occupation and pleasures; dispensing to those around him these pleasures and the information he has acquired; and, in one word, enjoying that great desideratum of human life, "*Mens sana in sano corpore.*"

H. V.
Greenfield, Mass. Jan. 19, 1839.

Light wanted—Corn and Potatoes successfully alternated in culture.

Brooklyn, Susquehanna co. Pa. Dec. 1, 1838.

JESSE BUEL, Esquire—Dear Sir—The agricultural interest is of vital importance, for it is upon this that we wholly depend, being not only the source of our wealth, but the medium of our existence. I have long seen that our citizens are too negligent in their vocations, and do not pay that attention to practical publications upon tillage, which their interests severally demand. We go on too much in our own individual and old way, and seemingly spurning the notion of learning and practising upon the well tried experiments of others. I have long wanted to enjoy the profit of reading the practices of farmers in various sections and latitudes, and upon different soils; and when I cast my eyes about me, my anxiety increases; and I would fondly hope that ere long your Cultivator would be both generally taken and read among us. It is true that many modes of tillage on other soils, and in foreign latitudes, may not be well adapted to our own; yet we know that many times, useful hints are taken from events of a foreign nation which prove to be, on trial, very salutary. Our country is new; our citizens are land clearers; and ere long must be either emigrants or land ploughers and grass growers; and every one must, or ought, to see that the most successful mode of doing these without reducing the fertilizing powers of the soil is an object highly desirable. No question can be raised that the most of us, if not all, by following in the too well beaten way of our predecessors and of superstitious practice, sacrifice not only our labor, but the strength of the soil we cultivate. It is indispensable, then, that we should reform. And how shall we do this successfully without that light which practical experience may shed upon us.

I noticed an experiment in your Cultivator, upon planting corn and potatoes together, by alternating the rows of each, and accordingly I tried the same with a small variation. I planted fifty-four perches of ground, after being once ploughed perfectly and well dragged, in the following manner, viz: three rows of potatoes and three of corn, and thus alternately. The corn I planted in rows, three feet and a half by two feet, with three stalks to the hill; the potatoes, in drills from a foot to fifteen inches asunder; planting both on the flat surface. I planted on the last day of May, and harvested on the 15th of September, and obtained twenty-four bushels of ears of corn, three loads of pumpkins, and fifty-five bushels of potatoes. The season was not altogether congenial to the potato with us last summer, being too dry; of course the seed was, by hoeing, raised too high to insure a full crop; and had the ground been lightly furrowed for the potatoes, and ridged for the corn, I think the produce of each would have been considerably increased—that of the potato in particular. The produce of an acre would have been 71 bushels of corn, and 163 of potatoes. This is at the rate of 35½ bushels of shelled corn to the acre, according to the usual mode of planting; and since 40 bushels in this country is counted a tolerable crop, the potatoes might be counted almost a clear gain to reward for the experiment.

S. W. NEWTON.

Caterpillar in Wheat, &c.

Warren, Warren co. Pa. Dec. 27, 1838.

J. BUEL, Esq.—Dear Sir—In your October number of the Cultivator, you allude to "A new insect enemy to the wheat crop," and invite a description of a worm, said to prey upon the mature grain. Such an enemy has made its appearance here.

I first noticed a worm in 1837, in a small patch of winter wheat sown in my garden. When the heads had

just shown themselves, and before being in blossom, some few of them turned yellow, dead. On examining, I found a worm in the upper joint. When the wheat was at maturity, I found the same worm in the kernel, of larger growth, but they were not numerous. They were examined with a magnifying glass. Those in the joint and those in the kernel were alike except in size. My field wheat also had some few of the same worms. In 1838, I began thrashing my winter wheat immediately after harvest; on cleaning up, was surprised to find in the screenings, separated from the heavier and better part of the wheat, a vast army of the new discovered enemy.

I now thought it might be of importance to examine them with a view to an acquaintance with their habits. It is a caterpillar, about 3-8ths of an inch in length, when full grown—is of a straw colour, but viewed through a magnifier, is striped lengthwise, with orange and cream coloured stripes—its head dark brown. All its movements, shape, legs, &c. indicate the caterpillar, and it will suspend itself by its web. The broken kernels indicate plainly that it preys upon the mature grain. I took a handful of screenings and worms and put them into a clear glass decanter, in September. They were very lively, and would have made their escape, but were prevented. After remaining unmolested for some time, they buried themselves under the wheat, where they seemed satisfied to remain, unless disturbed, when they would again endeavor to make their escape. After two or three weeks, they became languid, and in six weeks they had ceased to show any symptoms of life. I have preserved this sample of wheat for the purpose of examination another summer, if perchance a new generation should succeed.

How extensive the ravages of this worm are, I am not informed. How much influence it may have had in lessening my own crop, I am not prepared to say, but for some cause the yield, on thrashing, is much less than was anticipated. It may have been noticed by others heretofore, but is new to me.—Perhaps it may be comparatively harmless. The increase however from 1837 to 1838, was immense; and a like increase in future would be attended with calamitous effects. Whether such increase will take place, remains to be seen. The insect described by Mr. Murphy, in your November number, differs from this in colour and in size, and he says he saw nothing in the form of legs—this worm has legs like other caterpillars.

In your June number, you gave place to a communication from me, in which I stated that I had sown two bushels of winter wheat in the spring, after having prepared it as recommended by one of your correspondents, see 4th vol. p. 64. The result was not in favor of repeating the experiment, the crop being very late, light, and inferior in quality.

The Italian spring wheat has succeeded with me the past season, better than winter or other spring varieties. My spring wheat, early sown, was but little affected with the above worm. Very respectfully yours,

NATHANIEL SILL.

The Mulberry—Varieties.

Linnaean Garden and Nurseries,

near New-York, February 4th, 1839.

J. BUEL, Esq.—Dear Sir—Having been applied to by numerous persons to decide whether the Morretti mulberry of France, and the tree called "Alpine," are the same, and it having been controverted by some persons, we now state explicitly, that they are identically the same, and that every tree called Alpine was grown from Morretti seed. A quibble is made by some persons, who say the Alpine trees are selected Morretti—but we presume they are quite as much selected when under one name as when under the other. The Canton and Nankin mulberries are also identical with each other.

Of all the varieties of the mulberry ever yet introduced to this country, the *Morus Expansa* is pre-eminent for a northern climate, as it is very hardy, and has leaves equal to the multicaulis in excellence, and second only to it in size. Yours respectfully,

WM. PRINCE & SONS.

Blight in the Pear-Tree.

Near Vincennes, Ia. 16th January, 1839.

J. BUEL, Esq.—Dear Sir—As I have been a subscriber to your Cultivator, except the second year, I will say a word about preserving pear trees, from personal experience.

Pear Trees.—The first was as thick as a man's thigh; limbs and leaves turned black; I cut off all that was dying; continued to cut off all but two side limbs; new shoots put out, and the tree now has a fine top. Second, a small tree with a fine top, all the leaves turned black; I cut the limbs all off to near the body, rubbed the body with soft soap, made strong with lye; in two years after I cut off five shoots, from three to five feet long, leaving four shoots on; I have seen no more black leaves on this tree. Third, a pear tree as large as the calf of a man's leg, the top leaves turned yellow, and the under leaves turned black; I cut out ten feet of the top and all the limbs that had black leaves on them, and rubbed the body with soft soap and lye. Since that time it has grown finely; no more black leaves on any of these trees. Yours respectfully,

DANIEL SMITH.

Fish Manure.

Upper Aqueduct, Suffolk co. L. I. Feb. 1, 1839.

J. BUEL—Dear Sir—Mr. Roberts inquires in your November number, whether fish as a manure will impoverish

land. Now as long as land will produce good crops, it is immaterial whether it be rich or poor, and as long as he uses plenty of fish, with an ordinary blessing, he may rely on good crops. I have used fish manure forty years successfully, and my land is much better than when I first commenced fishing. I make use of from fifty thousand to one hundred and fifty thousand of fish, known here by the name of mossbankers, per annum, and could I get a million I should have none to spare. There is no manure that I use equal to fish for a crop of wheat, and all kinds of roots; but they do not have that effect, after repeating, that they have at first; and that is the case with all kinds of manure. Thence the necessity of mixing manures. Ten thousand mossbankers per acre is sufficient for a crop of wheat, without any other manure. My practice is, to put on twelve or fifteen large wagon loads of litter, and five thousand fish per acre, and then I calculate for a good crop of wheat, and after the wheat a good burthen of grass for three or four years. The same quantity of manure makes a good crop of Indian corn. The manure fishery is the making of the east end of our island. I think I may say that the production of our land is three times as much as it was before we commenced fishing. But it must not all be attributed to fish. We exert every means to make and collect manure, for without it we cannot raise our bread. For a farmer to break up a piece of land, and lay it down poorer than it was at first, is like borrowing money to pay his interest. It is astonishing to me that there are some few farmers yet, who will let their manure lie and ferment in the yard, when they must know that they lose half its virtue, for there is no time that it brings forth vegetation so well as when in a state of fermentation under the sod. I might say that our soil is a sandy loam.

JOHN WELLS.

Relics of by-gone Superstition.

Schenectady, January 10th, 1839.

DEAR SIR—Your industry and perseverance have enriched the Cultivator with much useful instruction and advice, both for the cultivation of the fields and the minds of farmers. If they will be wise enough to put them in practice, with as much earnestness and zeal as you have composed and published them, our country will soon exhibit beautiful hills and dales, loaded with agricultural wealth.

But sir, there is a quarter of our horizon yet incumbered with the clouds of ignorance, which if you can clear up and expel, it will redound much to the honor and excellence of christianity, over paganism and error, as well as to the improvement of agriculture.

The last time I sat on a grand jury, a woman of Dutchburgh applied for protection from her neighbors, who called her a witch. They sought opportunities to attack her when passing in the street, and attempted to draw blood from her head by striking her, believing that if they were successful, it would protect them from her witchcraft. The grand jury indicted several persons who had thus assaulted her. She was Scotch, and one of the grand jurors who lived near to her, said, that some of her neighbors believed that she had lately made a pass to Scotland, over the ocean in a wash-tub.

About three or four years ago, Martin Sitterly, a descendant of German parents, in Rotterdam, adjoining this city, stopped at our store, and said he was on his way to the adjoining town of Glenville, to expel the witches from the cattle of a Dutch farmer there, who had sent for him for that purpose. Shortly after, that farmer stopped at the store, and we attempted to admonish him for such folly. He answered with great pathos, that when his cows all slunk their calves, it was time to do something for them. My son asked him if he raised rye on his farm, thrashed it in winter, when his cows came about the barn doors, and eat the talings, or winnowings of the rye? He answered in the affirmative. We then told him, that the spur or ergot in the rye, which was eaten by the cows, caused them to lose their calves, and not the witches.

If grand juries would indict, and the courts would condemn to be hanged those convicted of witchcraft, as they formerly did, witches would be as numerous now as then, notwithstanding the boasted light and knowledge of the age.

Did you ever know a farmer make much progress of improvement, to be called a good farmer, who delayed sowing and planting till a certain time of the moon? The moon passes round the earth as the sun does every day of the year alike, and is every day and night equally bright and light; but her light side is not seen by us, except when the earth is between her and the sun, or partly so. Why should her influence then, if any, be greater at one stage of her passage than at another? Until men will cease to believe in the influence of the moon and in witches, they will not make good farmers.

The heathen, who knew not God, saw the sun, and that it gave heat and light, caused the rains, and the growth of vegetables; they thought it the great and good spirit who blessed them, &c. They also revered the moon, as she illumined the night; and when they had been instructed by the revelation of Christianity, the force of education was so strong, they could not forget the moon, as the cause of their good things. The glorious sun, without which the moon cannot be seen, gets no share of their praise for warming the earth, and bringing forth the crops, but all is bestowed on the moon, simply because it is all mystery. Eh, every thing which loses the mystery, loses its value, with the ignorant. The moon, like a looking glass, only reflects the light she borrows from the sun; and if she has any influence

it must be the light reflected only, for she affords not a particle of heat that can be measured.

Would it not be well for you to advise the almanac makers, or those who print them, to omit the figure of the man in the moon, with the signs, &c. in the second page of the almanac? It is a mere pagan practice, of no value, invented to excite wonder and mystery, and entirely devoid of truth. Most respectfully,

DAVID TOMLINSON.

N. B. I have again to admonish the printer of the Cultivator with a fault, in the Recipe I sent for curing pork hams.

It reads, "rub with fine salt." We never rub salt on any hams or beef which are to be put in pickle. If hams were rubbed with fine salt, and left in a warm place two or three days before put into pickle, they would be salted enough in fifteen or twenty days at most. Let "rub with fine salt" be dashed out with ink by each holder of the Cultivator.

A reader of the Cultivator has asked what must be the size of the bags for the hams! We answer, that we dare not incumber the Cultivator with useless remarks—That if a dish of suppaun and milk, with a spoon in it, were placed before a man, he should not ask how he should eat it! My hooks are formed like S—The bags may be put in strong pickle, and then dried to make them more tight if desired. Is not quickgrass a corruption? I call it quickgrass, for it is always alive and quick, unless killed by drying it.

Canal Policy.

Schenectady, January 23, 1839.

DEAR FRIEND—When the Erie canal was in making, on the flats in Schenectady, I asked the engineers what objection they had to the Mohawk river—that it was a natural canal, much better and safer than any canal made by art—that the bottom would not fall out, as it and the banks of the one they were making would.

All the answer I received was, that they could not make a towing path! I replied, that half the expense of the tow path they were making, would form one on the banks of the river—but that none would be needed, as the broad sheet of water would allow steam-boats to pass and tow the freight boats of much larger size, and cheaper than horse boats.

But, the answer of the engineer of the Duke of Bridge-water, when catechised by the committee of the Parliament, appointed to learn the feasibility of the Duke's canal, whether it would be proper for the government to loan him aid to finish it—the question was, what are rivers made for? The pert answer was, to feed canals, sir. The answer was well in that place, and when canals are made at right angles to rivers; but to make an artificial canal on the banks of a natural one, the river, for the distance of a hundred miles, was a novelty, and in my opinion, a folly.

I told the engineers, that before ten years should pass the business on the canal would so multiply, as to show its want of capacity to meet the great increase of the country—that the time would soon arrive, when every gallon of water in the Mohawk would be wanted for navigation. I grant that my prophesy was not in exact accordance with events—but, the fact, that the canal was discovered to be of too small capacity for convenience, within the ten years, proved to be correct, although the resort to the natural canal, the river, has not been considered by the engineers and commissioners.

Although it is a noble act in man, to acknowledge errors when discovered, and retract, yet our worthy engineers and commissioners are either slow of discovery, or too proud to acknowledge the error.

When I stated to Judge Wright, the objections to digging up the flats, instead of putting locks in the river, he acknowledged the force of the arguments, and said, we are merely executing the orders of the commissioners, and are not allowed to exercise our own best judgment. He said, the commissioners were appointed to make contracts and oversee the execution, and their pride leads them to become directors of the engineers.

The legislature placed such unbounded confidence in the canal commissioners, simply because the Erie canal has proved to be a successful project, which every one knew as well, would be the fact, that a canal must be the great desideratum for the internal improvements; therefore, as if the discovery had been the result of their gigantic minds, have given implicit confidence to all their projects of improvement and enlargement of the canal.

After spending fifteen millions of dollars in enlarging the Erie canal, by disturbing the farms and villages, &c. with high and inconvenient bridges over farms and highways, it will soon be seen, that the great error must be corrected by abandoning it, and taking the river, (much safer against breaches) and lakes to make a ship canal.

This cannot be seen now, in looking up the stream: but when the ship canal shall be made around the Niagara falls, and the ships advance down to Oswego, that will open the eyes of the judicious, to see the folly of enlarging the Erie canal from the Hudson to Oswego. From Syracuse to Buffalo, the Erie canal is of sufficient size for internal improvement for many years. But, when ships from the far west reach Oswego, they'll say we must go to New-York and the Ocean, or follow the rival canal now making in the St. Lawrence from Kingston to Montreal for ships, and they will then throw away the enlarged Erie, on the banks of the beautiful Mohawk, and adopt the natural canal, the river. It will not cost half the sum to make the ship canal from Rome to the Hudson, that it will to effect the present project of enlarging the Erie canal, by purchasing the expensive pro-

perty of individuals, &c. The facility of steam, the enlarged boats and ships, in the enlarged and broad sheet of water of the river, will reduce the freight to one-eighth, as well as save half the time, which are two enormous items.

The surplus and waste waters at the dams in the river, will be worth more than the cost of erecting the dams. The dams and locks may be more frequent, and of less depth, than in the Erie canal.

The locks for descending in the right bank, and for ascending in the left bank of the river, to be made out of the way of the current and ice, would be perfectly safe, and afford more expedition. Rolling dams would allow ice and surplus water to flow over with safety, and the whole valley of the superb and picturesque Mohawk, by means of the surplus water powers, for hydraulic use at the dams, would be converted into one continuous village, from the majestic Hudson to the elegant city of Oswego. My remarks, when the Erie canal was in making, had no force, as I was a humble citizen, and not clothed with the wonderful mystery of engineering. But, I venture to prophesy once more, that all the canal will be abandoned for the river, from the Hudson to Oswego, by the next generation, when a new class of men come into charge of the canal, who can see, and dare condemn the errors of those who acted before them, without wounding their own pride.

I address you, sir, on this important subject, because the sphere in which you move, has given to your opinions great celebrity in public improvements. If your mind should accord with mine on this subject, it is not too late to effect the alteration in the improvement of the canal. And, I beg you to give some heed to it, before more of the funds of the state are wasted in an error which the next generation must and will correct, after the great waste of millions. With great respect and esteem,

D. TOMLINSON.

South-Down Sheep.

St. Andrews, New Brunswick, via }
Robbinston, Me. 14th January, 1839. }

SIR—Being a subscriber to your excellent and widely circulated paper the "Cultivator," I take the liberty of addressing you, as you appear from your publication to take so lively an interest in the welfare of your agricultural friends.

During a short visit that I made last summer to the state of Pennsylvania, I was much pleased to find a desire to improve the breed of sheep, by importing South Downs into that state, but the great obstacle that offered itself to the flock-masters there, was the difficulty of obtaining good bred sheep from England, as they corresponded with no person who had an opportunity of procuring them, from some of the first flock-masters in England, where only they are to be found. I am aware that many sheep said to be South Downs, have lately been imported into the United States; but I very much doubt if they are of that breed; however, I can only speak with certainty of those that have been pointed out to me as such, which were decidedly merely a cross with the Downs, some with the Dishley, or New-Leicester breed, and others with a sheep known in England as the Romney Marsh sheep; which although they fatten early, and kindly, are only calculated for a rich marsh or pasture grounds.

To obviate the before mentioned difficulty I have offered to procure some ram lambs next fall, for any of the gentlemen in Pennsylvania who may wish a cross with the long established, and much admired stock of my late father, Mr. Ellman, late of Glynde farm in the county of Sussex, in England, which are now in the possession of my brothers, who still defy all Europe to produce sheep equal to them. Should any of your neighbors be desirous of trying a cross with this valuable breed, I shall be happy to facilitate their views, and I will engage to import from the above mentioned flock, at \$125 each, to be delivered here, a few ram lambs fully equal in blood to the rams now letting on my brothers farms, at fifty guineas each for the season. The purchasers to pay me all reasonable expenses that I may be at for the keep of the lambs after their arrival here. From hence they can be conveniently shipped on board the Eastport packets direct to New-York, or should any one prefer importing them at their own expense, by making arrangements with me for the payment of the sheep, they shall be delivered on board either in London or Portsmouth, at \$102 each, or £20 sterling, if paid for in London at the time of shipment. Sheep at a more advanced age would of course cost more, and any application to me post paid shall receive my early attention.

I recommended the flock-masters whom I met with last summer to try the South Down sheep, remarking on the good qualities they possess; which it would be useless to repeat, as I observed in your number for November 1836, a hasty description of these sheep, which I am satisfied was taken from a treatise on this breed, written by my late father, who it is well known brought the South Down sheep to their present high state of perfection. If the object of the farmer is length of wool, without regard to fineness of pile, or the quality of the mutton, I would not recommend the South Downs, but where both are an object, they are decidedly to be preferred. It must also be recollected that the cross with the long woolled sheep will not bear hard keeping, they are only adapted for good lands; while the cross with the South Downs will stand any hardship, as no other sheep in England are capable of enduring so much exposure, or are so highly prized: and no sheep show a disposition to fatten so early. If I were to enter at large into the good qualities of these sheep, I should trespass

too long upon your time, suffice it at present to say, that I challenge all Europe to produce so much weight of mutton from another breed, as I can produce upon the same keep from the pure South Downs, and yet of such superior flavor: for I know from experience, that no sheep in Europe will live on such short keep, nor can any exceed them in symmetry; and it may also be remarked, that the fleece of the South Down sheep, (that of the ram weighing eight pounds,) has within these few years so much improved in quality, that a great part has been considered fit for the manufacture of superfine cloths.

My brothers have lately exported rams to foreign parts, and a great many to Scotland, by which a cross has been gained that has nearly driven the native breed out of the country.

I must in conclusion observe, that as I hold a situation under government, and have no lands at my disposal, I am unwilling to import these sheep, unless I see a certainty of disposing of them, and I can without hesitation warrant those to be of the purest blood.

If you consider these remarks worthy of attention, I will thank you to give them a place in your valuable columns. I am, sir, your very obedient servant,

WM. ELLMAN.

J. BUEL, Esq.

REMARKS.—We make no pretensions to be a judge of sheep, but we do profess to have an opinion of mutton. We have tried the South Down mutton several times during the past year; and we would cheerfully pay one cent a pound more for it than for any other sheep's meat we ever ate. The wool of the South Down bears a higher price in the English wool market than that of any other native breed of sheep.—*Cond. Cult.*

Ruta Baga.

Easton, Pa. January 8th, 1839.

J. BUEL, Esq.—Dear Sir—Last season I have raised about one and a half acres of ruta bagas, yielding a little over 700 bushels. I am well pleased with the crop, as respects the quantity, considering the very dry and unfavorable season for roots; they are of great benefit to my cows, producing much richer milk and cream than any thing else I have ever fed them during the winter season, the milk being entirely free from any taste of the turnips, giving my cows a little salt every day. But with all these advantages, I have been much discouraged in the raising of this crop, it having been an immensely troublesome and expensive one to me; they were sown on ridges, in drills, with Merchant's drill-barrow, and owing to the very dry weather, came up very thin, slow, and delicate and were immediately attacked by millions of insects (turnip fleas,) which I tried to stop by sowing all the drills with ashes and lime slaked in urine, but succeeded only partly, and was obliged to water the whole of them with urine from the cistern attached to my stables, which cleared them effectually from all insects. But during these operations the plants of course grew but very little and the weeds entirely overpowered them; (the ground being very rich) then after the horse hoeing, commenced a very slow and tedious hand hoeing, the plants in some places being hardly perceptible amongst the rank and thrifty weeds. A week or two afterwards we had to repeat the same tedious operation, and only after that, and after a few refreshing showers they took a start and commenced growing; when after one more horse hoeing there was nothing more done to them. Now my object is to ask Mr. Buel's advice as to the practicability of a plan which I think of adopting hereafter, and by which it appears to me that in the raising of the valuable roots, the above described, expensive, laborious, uncertain, and I think, general mode of culture, would in a great measure be overcome. It is this: I thought of sowing my seed eight days earlier in a well prepared seed bed, where all the plants for one or two acres would be in a very small plat of ground, and where with little trouble they can be watered and protected from the flea. A few days before I commence transplanting them, I would prepare my field for receiving the plants which I then think would be too strong to be injured by insects or to be outgrown by weeds. (I judge from the few I transplanted last summer, from where they stood too thick in drills, and which at that time were very large and strong, and which all grew and turned out as fine turnips as any in the field, and besides, they were more smooth and had not so many roots as those not transplanted.) First I should commence removing the largest plants from my seed bed, and prepare and plant part of my field according to the number of plants that would be fit; by these means thinning them out and giving the smaller ones air and room to come on, for I think it of much importance to have all the plants stout and strong before they are removed, in which case the stems of the leaves will remain green and erect, and they will take a start immediately, and will then of course be out of the way of weeds and insects. Another advantage I see in this mode, is that the plants will all be placed at regular distances and exactly as I want them; which cannot be the case if they are not transplanted, for some of them will be so placed that, if in thinning them out you remove the one, there will be too much space between the remaining and the next one, and if you remove neither, they will stand too close. I have often heard ruta bagas much praised as a vegetable for the table, but cannot make use of any of mine; we have tried them frequently and could never boil them soft; they would after three to four hours boiling still be hard; or are there different kinds, and mine perhaps not of a good kind for the table?

I hope Mr. Buel will excuse this long letter, about a

matter in which I may be entirely wrong, and in reference to which any advice from him would be thankfully received. I have never seen the above manner of raising ruta bagas recommended, and have therefore thought best to ask advice, before I attempted it, of a person in whose extensive knowledge in all agricultural matters I have the greatest regard and confidence. Very respectfully yours,

FREDK. SEITZ.

N. B. I consider the trouble of transplanting the ruta bagas nothing to be compared to the advantages arising from doing it.

REMARKS.—Our correspondent suggests the same mode of avoiding the turnip fly, and of obtaining a large crop, that Cobbett employed while farming on Long Island, viz. transplanting into fresh ploughed ground—and which he strenuously recommended to others. He obtained in this way, thirty-three tons of roots to an acre, and the transplanting of an acre, occupied him and one hand the morning and evening of three days, the middle of the day (August) having been too warm to work. The great difficulty is to get hands who can use the dibble with facility, and use it well. A smart man will transplant nearly one thousand in an hour, the plants being furnished to his hand by a boy. We have had ruta бага that would not readily boil soft; and we consider such of inferior kind, or planted too early, which is apt to render them ligneous or woody.—*Conductor.*

Culture and profits of Melons.

Narrows, L. I. January 18th, 1839.

Mr. BUEL—I will now endeavor to describe the manner in which we cultivate musk melons, and also state the produce and amount of sales from my crops of the preceding four years.

The kind which we at present cultivate, and with which the New-York market is principally supplied, is known among us by the name of Skillman melons. They average about six inches in diameter, are nearly round, have a rough skin, and their flesh is of a green colour. This is the sixth variety which has been in vogue during my recollection, and the finest of them all. The seed from which all these varieties originated, I believe to have been imported from the coasts of the Mediterranean. They soon degenerate unless care is taken in the selection of the seed. We prefer for melons a rich sandy soil, and on this they flourish better than on any other, and are not so liable to speck in rainy weather. When planted on a red clover sod I have seldom failed having a good crop, but when this is not to be had, we prefer preparing the ground by sowing with rye in August or September of the preceding year, as described in my former communication on the cultivation of cucumbers: the ground is also prepared in a similar manner in the spring, except that the hills are furrowed five feet apart, and the same kind and quantity of manure made use of.

We generally commence planting about a week later than we do cucumbers, but occasionally at the same time, dropping from twenty to thirty seeds into a hill, and covering them about an inch deep with fine soil. Eight or ten days after putting in the first seed we commence planting over, which we seldom perform the second time unless by examination we find the first seed about to fail. The seed of melons is not as liable to rot as that of cucumbers, but long storms are very apt to destroy the young plants, and they will even produce great injury when the plants have vined from off the hills. In 1837, a succession of wet weather caused the ends of the principal part of the melon vines in our vicinity to die as late as the 8th of July, but mine fortunately did not suffer as much as those of my neighbors. We cultivate the plants in the same manner as cucumbers, except that in hoeing, it is generally necessary to remove a small portion of the soil from between them, in consequence of their being too short to admit of the young weeds being covered without injury to the plants. We gradually thin them down to four in a hill, standing from five to six inches apart. The plants are liable to the depredations of the same species of insects which prey upon cucumbers, and they are destroyed in the same manner.

Melon vines are in bearing from five to six weeks; whenever a drought occurs, this period is much less, for that of 1838 finished mine in four weeks. They often bear a second crop which answers for pickling, but I have known this crop to come to perfection.

When the fruit is ripe, it requires to be gathered every day, otherwise there would be large quantities lost in consequence of becoming too ripe and soft. When ripe they have a yellowish colour, but such as are cracked around the stem and come off easily from the vines, we always gather, for they will be fit for eating by the next day, when sold in the markets.

To ensure good crops, melons should not be planted two years in succession on the same ground; they require a rotation. Marshall, an English writer, recommends the carrying of cucumber and melon seeds a week or two in the breeches pockets previous to planting, to dry away some of the more watery particles: were we believers of this doctrine, it would be a difficult matter and require large pockets, or a regiment of small ones to carry it into practice, since some of us, to secure our crops, plant from three to four bushels of seed in a season.

The following is the number of hills planted, produce (large quantities of unsaleable ones fed to the hogs excepted) and amount of sales for the preceding four years, viz.

Year.	Hills planted.	Bushels sold.	Amount received.
1835,	6,664	1,133	\$939 10
1836,	7,850	561	590 57
1837,	8,011	990	913 56
1838,	7,590	823	713 96

Yours,

TUNIS G. BERGEN.

Great product of Sugar Beets.

Albany, January 1838.

Mr. BUEL.—Sir—The following account of a most extraordinary yield of the sugar beet, was communicated to me, in a letter, from Mr. Samuel Guthrie of Sacket's Harbor. I regret he omitted to give his mode of culture, nature of the soil, &c. &c. as we could then probably profit by his experience.

I cultivated a small patch last season, of sugar beets and carrots, but my crop did not begin to compare with his—still I am so well convinced and satisfied with their value for feeding stock, that I have determined to try them again, the coming season, should my life be spared.

My cows, calves and hogs, preferred them to the ruta бага, while my sheep preferred the latter.

I feed my horses carrots, one meal per day, and think them equal to oats—bushel for bushel—it not only keeps them loose, but gives them fine glossy coats.

CALEB N. BEMENT.

THE EXTRACT.

"I observe in the Cultivator," says Mr. Guthrie, "that you had great success, last winter, in wintering hogs on ruta bagas. You have not probably given a trial to the French sugar beet. From some experiments I am induced to think that the French sugar beets will prove to be the best and most economical food for the hog, to be found among the root tribe. In the same enclosure, last summer, I raised, in the ratio to the amount of ruta бага of about 500 bushels, of carrots 937, and of French sugar beet the very large quantity of 2176 bushels to the acre. The soil and advantages of culture the same in each. The ruta бага was greatly injured by insects, while the beet was without an enemy. The cost of the sugar beets, which, by the bye, were almost as white and smooth as hens eggs, scarcely exceeded one cent per bushel. I washed and sliced a quantity of ruta бага, carrots and beets, and fed all at once to my hogs, on a few occasions, and was induced to believe that the hogs gave the preference to the sugar beet. I am zealously preparing for the purpose, and intend to feed a few thousand bushels of French sugar beets another winter, at all times thoroughly steamed, with a slight admixture of bran, shorts, or ground screenings, and I have no doubt but I will winter a swarm of hogs in this way for a less expense than has ever been heretofore done."

Hints to those who raise great Crops.

New-York, January 18, 1839.

Mr. BUEL.—Dear Sir—I take my pen with reluctance, inasmuch as I fear some unpleasant feelings may arise from what I have to say; but as I have no object in view but to vindicate the propriety of fairness and truth, I hope none will be offended. I have all the volumes of the Cultivator, and the pleasure they have afforded me, has induced me to obtain several subscribers to the work. In so doing, I used no other argument than this, viz. that it contained more matter of fact than any other agricultural periodical I had ever met with, and I am sorry to say, that some recent communications are calculated to create wrong impressions. While reading the last number, my attention was drawn to a close examination of the several statements in relation to the corn and ruta бага crops, each of which foot up a large amount of profit, and that is the only point I shall now consider. Statements made up in this manner, are calculated to do injury, not to the experienced farmer, but to the new beginners and persons unacquainted with agricultural pursuits. If you examine the statement of Mr. Osburn, I think you will sustain me in this position. He states that he planted and cultivated three acres of corn, and that the cost of so doing was \$61.80, and that the best acre produced a nett profit \$87.71; had the other two acres produced as well, the whole profit would have been \$263.13; i. e. if the statement is a fair one. I think it an unfair one, and believe many others will form the same opinion. It is difficult for us city people, who do little with corn but cook and eat it, to see how a farmer can buy and fence land and then furnish 50 loads of manure to the acre; and think the expense too trifling to occupy a place in the accounts of his farming operations. This is what I complain of, telling the truth, but not all of it, leaving the uninformed to guess at what is omitted in the debit side of the account, or pass it as unimportant, whilst on the other side, we find every thing set down with the most scrupulous accuracy, even to the stalks and pumpkins, and yet the land, manure, replanting, shelling, gathering pumpkins and stalks are forgotten. Now I can believe that 118 bushels of corn were raised on the acre, but must protest against the claim to so great an amount of the proceeds as profit—profit, you know is the pith of every thing, in these days, and if the farmers take the Frenchman's plan of calling the amount of sales nett profit, I fear the stock will fail. But let us look a little farther, and see how the profit is made out. First, one man, two boys, one horse, and two cattle, worked at the manure ten days for \$10. Only look at that to begin with. Why, sir, you or I would have asked that amount for the board and keeping of the cattle during that time, and thought it little enough too. Then look at the hoeing; thirty-four days work of men and boys, horse and cultivator all for \$13.87. Who could not realize large profits from any business with labor at that price. I do not mean

to infer that more wages was given than was stated, but is it fair to publish it to prove the profit of raising corn? Look at it again; divide \$61.80 by the number of days spent by men, boys and beasts in cultivating this crop, and you will find that the amount of each day's work would purchase about 23lbs. of this same corn. Now the beasts might live upon this quantity of food, but the men and boys could not, and but their lindsey woolsey too. In choosing the statement of Mr. Joseph S. Osburn as the subject of these remarks, I entirely disclaim every thing of an invidious character. Many of the remarks would apply equally well to other statements found in the Cultivator, and I shall leave it to your correspondents to apply them where they will suit best, and respectfully ask them to continue giving us the result of their labor and experiments—give us the truth—the whole truth—sound conclusions, drawn from the new, enlightening and profit working doctrines taught and practised by the ablest agriculturists of our country; then, only, will we rightly understand and profit by each other's experience. The day is not very far distant, when one man and one acre will produce more than two men and two acres now do, taking the state together. All that is necessary to bring about a result so desirable, is to encourage and circulate sound and well conducted agricultural papers, particularly those which give as much practice as theory. Then those who will learn farming as they learned their multiplication tables—learn to connect facts as they connect figures, and learn too the relation they bear to each other.

I have continued this scribbling to an unreasonable length, but must urge one thing which is worth more than all the rest. Let every farmer and mechanic learn the science of his business—or in other words, the connection of parts, and how each and every one is related to the other, that he may be enabled to place each part in the most advantageous position. When the mind and body are engaged in the same business, the hands forget to tire. Study is therefore no hindrance. If any of the above is worth publishing you are at liberty to select and use it as you think proper. Respectfully yours, &c.
JOHN M. DODD.

There is much truth in the remarks of our correspondent. We could wish that these details were given with more accuracy; but we do not feel at liberty to correct them in this respect. Our object in offering the premium, was to increase the average profit of the corn crop, by concentrating labor, and inducing a more enlightened mode of culture. We consider this object has been promoted in the culture of the crops which have been presented for premium—that the soil has been made to yield a greater product, without a corresponding increase of expense. We looked simply to the fact, that while the expense of culture was no greater than is ordinary, or should be, the crops were three-fold greater than common. Our correspondent is not aware of the fact, that manure has not yet hardly a nominal value in the west, and that many farmers are glad to have it removed without price. These corn crops afford a demonstration of its intrinsic value—and hence, too, result in a benefit to the public.—Cond.

National Agricultural School.

Washington City, January 22, 1839.

JESSE BUEL, Esq.—Sir—I learned with great pleasure, from your letter of the first inst. that you approve of my proposition, of having an agricultural school erected from portion of the Smithsonian legacy.

The most effective way of carrying this object, would be by petition to Congress from the agricultural societies, from several parts of the Union, and principally, as you mentioned to me, in discussing it in the agricultural journals.

Probably you have received my memorial on the manufacture of beet sugar; I do myself the honor of presenting you that of the proposed agricultural institute.

I take the liberty of sending you two packets, which I request to deliver to the addressed assemblies of the coming month.

Should I go to Europe this coming spring, I shall take a tour of the continent, to investigate not only the new improvements in the manufacture of beet sugar, but also agriculture in general. Should you or the assemblies honor me with orders, I should feel happy to attend to them. Very respectfully,
CHARLES LEWIS FLEISCHMANN.

Queries.

Morristown, Feb. 7, 1839.

JESSE BUEL, Esq.—Dear Sir—Will you be good enough to give to a subscriber information upon the following points, 1st. If a farmer go to the expense of sending to Albany for a pair of Bement's Berkshire pigs, what course or rules of breeding must he adopt to keep his stock pure, or in other words, how shall he prevent the degenerating effects of breeding "in-and-in?" 2nd. (As extracted from the *Farmers' Cabinet*.) "What is the best method known among our builders and mechanics of protecting northeast brick walls, and generally of keeping stone and brick houses dry?" 3rd. Has the French *Asphaltum*, which is now used in France and England, for roofs, side-walks, &c. been applied in our country to protect northeast brick walls, from our heavy storms?—if so, where, what is the expense per square yard, and with what success?

If you have not turned your attention sufficiently to the last question, to give the requisite information, will some one of your numerous subscribers answer the same. For although it may not be strictly an agricul-

tural question, yet it relates to the protection and preservation of brick walls, in which many of your readers are equally interested with the SUBSCRIBER.

REMARKS.

1. The degenerating effects of breeding in-and-in, can only be avoided by crossing with other families or other breeds.

2. For protecting the northern walls of houses from the weather, or of keeping stone or brick houses dry, the only expedients we have known to be adopted, are to cover the exterior with cement, to saturate it with oil paint, or to cover it with a coat of white wash. Mr. Coke uses the latter as a preservative to wood as well as walls. For this purpose the lime is used fresh from the kiln, and clean sharp sand, and mixed with hot water, and laid on hot. Our brick walls have been covered with a lime-wash, we believe with the addition of a little salt. The wash appears nearly as durable as paint; and although we consider it some protection, it does not prevent the interior of the walls becoming damp in the spring and during long spells of damp weather.

3. Asphaltum has not been applied in America, that we have learnt, to the purposes noted by our correspondent. Asphaltum is a species of mineral tar, composed according to the analysis of Klaproth, of 32 parts of bituminous oil, 30 of charcoal, and 20.50 of water, silice, alumine, lime, and the oxides of iron and manganese. It abounds in the West Indies, and particularly in the island of Trinidad. It becomes solid on exposure to the atmosphere, and burns readily. We are not acquainted with the foreign modes of preparing it for pavements and roofs. We invite some one capable to supply our deficiencies in this matter.—Cond.

Mode of destroying Pea Bugs, &c.

North Mansfield, Feb. 14th, 1839.

J. BUEL—Dear Sir—For about ten years, I have directed my attention specially to the cultivation of select kinds of the garden pea, for seed. By care, and the selection of the purest and ripest seed from year to year, the quality of the seed became greatly improved; and practice enabled me to ascertain the most successful mode of cultivation. My garden contains one acre; upon one fourth part of this, I have raised in different years from four to seven bushels of pure seed, in value from five to six dollars per bushel.

I have frequently seen it stated, that *worm eaten* peas were not materially injured for seed; but I have proved by experiment, that they are of little value. Such of them as vegetate are of feeble growth, and a very considerable proportion will not germinate at all.

As soon as my seed is well ripened, I put it in large jugs, of any convenient size, well corked and sealed. The egg of the insect, within the pea, is at this time in such a state as not to injure the seed, and not being able to change its form, or to grow without air, the seed remains until needed for use, entirely without injury. Seed of this kind is of more than double value, compared with that ordinarily sold; and by repeatedly sowing such seed, the ravages of the pea bug, I suppose may be in a great measure prevented. Families should be careful to reserve their earliest and best seed, and as soon as it is perfectly mature, seal it in bottles. If the seed is not dead ripe, the matchless and some other delicate varieties, will to an extent fail of coming up; and any considerable delay in bottling will allow the bug time to commence his work.

My principal object in writing to you, is to name a disease, which in this region, for a few years past, has seriously affected the culture of the garden pea: how far the field pea has suffered from the same cause, I am unable to state; though there is evidence, in some cases, of a new form of blight.

About four years ago, I observed that the plants in a few distinct places in my beds, began, after two or three weeks growth, to appear sickly, and gradually to turn yellow. I examined the roots, but could perceive no evidence of any insect. From that time to this, the disease has extended, till the profit of culture is destroyed. I first heard complaints on this subject in dry gardens, perhaps six or eight years ago, and attributed the evil to the quality of the manure, but am now convinced, that the cause was the same from which the gardens in Connecticut are extensively suffering.

The following facts I have ascertained relative to the disease mentioned.

1. It appears in places widely remote from each other, and in instances in which the seed is obtained from different sources.

2. Dry soils, which ordinarily are best adapted to the cultivation of the early pea, suffer most; and heating manures cannot be used in such soils.

3. The early pea is most subject to the disease; but even the hardy garden marrowfat, is often diminished in its products one half. Many plants prematurely turn yellow and some entirely die.

4. Ground planted with the pea for successive years, bears the most decisive marks of the disease; but change of soil does not entirely remove the evil.

This calamity, if it should extend, will be very serious. It has nearly ruined the profits of my garden, the last four years. I design to apply remedies the ensuing season, and shall employ salt, first of all. If you can communicate any facts with reference to the disease, or its remedies, you doubtless will oblige very many.

I will only add, that a disease, something similar, has in a few instances affected whole fields of maize, without any appearance of insects at the root, as I have myself observed. A few spots upon the leaves were the first in-

dications of disease, while the plants were from one to two feet in height; and soon the whole field changed its colour to a sickly yellow, and scarcely any product was obtained, though the plants reached about their usual size. A neighbor pointed out this disease in a field of mine, two years ago, and his predictions of the result were more than realized. Truly yours, a constant reader,
GULIELMUS CLERICUS.

Advice Asked.

New-Baltimore, Va. Feb. 11, 1839.

DEAR SIR—I think the advice which you give in the Cultivator, is generally excellent, but owing to circumstances it does not always meet our cases. Your soil is better than ours, your farms smaller, and your laborers different. I will describe a concern here which actually exists, and ask you to conceive yourself the proprietor, and say what your course would be. Agricola has a farm of 490 acres, about 350 acres of it open, and in cultivation; the soil a mixture of sand and clay, the preponderance rather in favor of the former. The yield from seven barrels to one of corn to the acre, planted at right angles, four feet distance, two stocks in a hill—of wheat, about fifteen to three bushels per acre, when fallowed; on corn land, less; about seventy-five acres of the farm in clover, a small portion of low land, but the greater part is high and rolling; the whole farm under pretty good enclosure, laid off into nine fields. He has a family consisting of himself, wife, and six children, all daughters excepting the two youngest, entirely unable to labor; also nine slaves, of whom, one is a man, another a woman, a lad and two smaller boys, the rest children unable to work. He has a tolerable supply of horses, cattle, hogs, and sheep; and of farming utensils; a year's allowance, and but little money. Hirelings cost from \$8 to \$10 per month. Now as this is a real case, you will oblige a subscriber by saying how you would proceed, if you were the proprietor. Let your answers come out in the March number, if convenient. Yours most respectfully,
JNO. OGILVIE.

Plaster costs from \$5 to \$6 a ton—lime too far off to be procured at reasonable cost, and no manure to be obtained, besides what is raised on the farm. J. O.

ANSWER TO THE ABOVE.

Agricola works 350 acres of land, from all appearances materially good, with two grown persons and three lads, besides himself, the whole not exceeding five efficient hands, being about seventy acres to each laborer; and he gets an average product of twenty bushels of corn, and nine of wheat, taking the mean of his numbers, from an acre! In other words, he barely makes out to live upon the product of his 490 acre farm, while many a Yankee not only lives, but lays up money, upon a tenth of these acres. The difference in the two cases arises principally, we suspect, from the capital, the labor and the skill, which are employed on the smaller, and not on the larger farm. And the best way of equalizing the Yankee in profits, is to imitate him in practice. We therefore advise Agricola, to concentrate his spare capital, his manures, and his labor, upon fifty acres—forgetting that he has any more, except for the range of his cattle—and to confine his efforts to the improvement of these fifty acres, till he can grow upon each and any of them, sixty bushels or twelve barrels of corn, and at least twenty bushels of wheat. Manure is the first requisite to improvement. Let him save, therefore, every refuse animal and vegetable substance, and apply it economically. Clover may contribute much to fertility, if ploughed under before it has run out, or been eaten down to the ground. The beet and Swedish turnip, besides affording much to the farm stock, return much to the soil in the form of manure. Let him plant no more corn than he can manure well; and sow no wheat till he can grow sixteen bushels an acre. Let him alternate grain, and grass and roots. In this way, with Yankee industry, in six or seven years, we think the fifty acres will be made to yield him more than 150 acres do now, and with one third of the labor he now bestows, or ought to bestow, upon the latter. Let him keep up the fertility of this fifty acres by the same means that he raises it; and he may then apply his surplus means, the profits of the fifty well cultivated acres, to grapple and bring forward fifty other acres to a like condition.

We commend to the notice of our correspondent the communication of Mr. Garth, of his state, inserted in our last number, and our notice in this sheet, of the excellent practice of Mr. Brewer, of this state—both detailing the means successfully adopted for renovating lands, and rendering them fertile.—Cond.

A new Wheat.

Galena 24th Jan. 1839.

JESSE BUEL—Dear Sir—I send you enclosed some few grains of my many headed Santa Fee wheat—I am yet at a loss to find, whether the kind I have is the winter or spring variety—they have both in New Mexico) the berries I send you, were produced from a sowing made on the 20th of May last—they are defective; I have planted some of that grain last fall, as winter wheat. I hope yet that some one may succeed in raising that grain to perfection, as I am convinced of its superiority both in yield and quality, over any other wheat raised in this country. I have had some single straws produce as many as fourteen lateral ears, besides the centre or main ear, the laterals being about one-third of the length of the main ear. I have several valuable varieties of Indian corn or maize; two kinds procured from the Indian tribes that inhabit this section of

country, both very early, productive, prone to succoring and producing ears on them, besides other kinds; if you are desirous of obtaining some of those kinds, I will forward them to you *post paid*. I cultivated last summer, for the first time, some of your Buel corn, which I take to be the same as the Dutton—I am satisfied that it is two weeks earlier in this climate, than it is in yours, or in the same latitudes in your state. I prefer other larger kinds of maize which we cultivate in this climate, although not quite as early, ripens well here, and bears larger ears, long seeds and small cobs, and will shell out a struck bushel of grains to three half bushels in the ears, heaped. I forward you also enclosed, a few grains of a kind of white corn, which having a large cob and desirable seed, I transplanted upon the cob of a yellow variety—in this way the corn I got was the production of the two kinds above mentioned, of course a mixture of white and yellow grains, mostly, however, upon the large cob. I however found a few ears that retained the desirable small cobs and a mixed seed; from these I selected carefully all the perfectly white grains, planted them apart from other varieties, and raised the beautiful white grains now sent you, without a single yellow grain, and retaining the small cob. This variety, I am confident, will be found early enough for your climate, and preferred from the whiteness of its grain. I am very respectfully, &c. JAMES G. SOULARD.

We believe yellow corn is generally more rich in nutritious matter, and the meal from it more grateful to northern palates, than the meal from white varieties.—*Cond.*

Queries and Answers.

Tuckasaga P. O. Mecklenburgh co. N. C. Feb. 4, 1839.
J. BUEL—Sir—Will you or some of your correspondents please to answer the following queries. 1st. What is the best mode of destroying broomsedge or broom grass in meadows? 2nd. What is the best mode of destroying dock in meadows? 3rd. At what time, and how, ought bees to be put into the bee house, to be raised and managed on the housing plan? 4th. How is the horizontal hill side ditch and graduated furrow laid off, at what part of the field or hill side, is the best to commence at, and how many inches descent in the rafter level of twelve feet span is necessary to prevent hill sides from washing? I would like very much to hear the whole process explained, as I understand it is practised pretty extensively in some parts of Virginia. Respectfully yours. W. H. McHEARY, P. M.

ANSWERS BY THE CONDUCTOR.

We leave the first and last part of the fourth query to be answered by some Virginia correspondent, where we believe broomsedge grows, and where the business of preventing and healing galls is pretty extensively practised; and proceed to answer the other queries.

2. The only effectual mode of extirpating dock in meadows, is to destroy entirely the root and top; and the best mode of doing this is to pull them up, before the grass is mown, which may generally be affected with ease, by seizing the seed stock near the surface, and drawing up the roots. The entire plants should be gathered in piles by boys, and when dry enough, burnt to ashes. The labor is not great.

3. Bees should be put in the bee house the evening after the new swarm has come out—or any other time will answer.

4. If we understand the fourth query, the first part relates to draining on a wet side hill. The ditch or under drain should be laid off just above where the appearance of the surface indicates an excess of water, and dug through the porous or watery stratum, and so far into the subsoil or pan, or till, as to form a channel in the latter for the conveyance of the water; and it should not have so great a descent as to cause the water to wear upon the bottom or sides of the drain. A second and a third drain are often necessary below the first, in consequence of spouts or springs bursting out there.

Prevention of Smut—Lunar influence.

Clinton, N. Y. January 26, 1839.

Mr. BUEL—Sir—With your permission, I will briefly state the result of my efforts to prevent smut in wheat. I prepared the seed for one field by washing (not steeping) in a strong brine, following with lime in the usual way, and sowing immediately. The result was an almost perfectly clean crop. For another field, the seed was merely washed in fresh water, and limed as before. As the sowing commenced, it began to rain, and continued until the seed was all harrowed in. At harvest, I found a very smutty crop. I am inclined to account for this by the substitution of fresh water for brine, or putting the seed in during a rain, or by both united. The latter I am now sure was a great error; suspected so in the time of it, and hope not to commit the like again.

With respect to "lunar influence," I wish to say a word. If it be as great as some suppose, the subject is a very important one. Without having any decided opinion as to its nature or extent, I entertain some doubts whether the facts stated by your Plymouth correspondent, in the *Cultivator* for December, are the result of "lunar influence." Some years since, hearing the remark that pork killed in the new of the moon would swell in cooking, and noticing that my pork that year did swell finely during that process, I at once referred to the time of butchering, and found it to have been performed at precisely the opposite period. I think the result was similar in another instance. It would seem, at least, that if the common saying is sometimes verified, it is not *always* the case. Very respectfully yours, G. BUTLER.

VOL. VI.—NO. 1.

P. S. I will just mention that I made an experiment last spring, with the contents of an old vault or privy, notwithstanding the fears of some, that it would prove the death of vegetation. It was applied to corn ground, in the hill, at the rate of about twelve loads to the acre. Perhaps a less quantity would have done as well, and a compost form I now think the best way of applying it. The result, however, was astonishing, producing a most luxuriant growth, far exceeding that portion of the field prepared with manure from the hog-pen. A heavy and destructive wind about earing time swept over the field, breaking a large number of stalks, of course greatly reducing the crop. G. B.

New Implement—New variety of Corn.

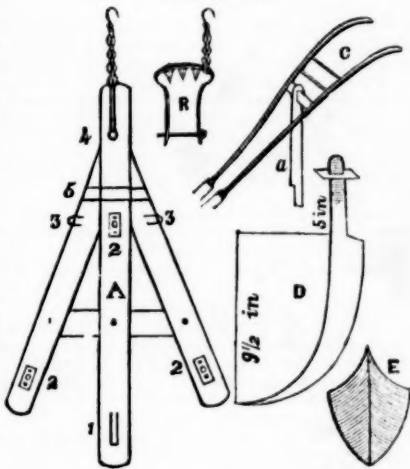
Madison, Ia. January 1, 1839.

J. BUEL—Dear Sir—The drag or harrow, here described, is the best implement for the cornfield, market garden and "truckpatch," I have ever seen. It is preferred to and takes the place of the *cultivator*, where both are known, the superiority consisting mainly in the circumstance of its getting deeper into the ground and leaving it in a situation much less likely to *bake*. I obtained a drawing and description from my brother in Maryland for the benefit of this state; a copy is annexed for the benefit of mankind.

Do you eat roasting ears? so called because they are almost always boiled—If you do, plant Tuscarora and sugar corn together in equal quantities, and you will obtain an article superior to anything you have ever tasted in the shape of corn. I raised a small quantity this year, which was the "town talk." It appears from that which I have saved for seed, that the sugar-corn mixes with the Tuscarora, and not the Tuscarora with the sugar. I will send you a few ears of that mixt corn. Would not the *sugar grains* in these ears, as they are much larger, produce a sugar corn superior to the old? I mean to try it. Yours with much regard,

G. FITZHUGH.

[Fig. No. 3.]



DESCRIPTION.

The frame is made of good oak timber, 3 inches broad on top, by 3½ inches deep. The middle piece is 3 feet 2 inches long—the clevis hole seen at 4 is 4½ inches from the end; the front tooth in the same piece is 10½ inches from the end, and seen at 2 in a square long plate with a round hole for the neck of the tooth, to come through; at 2½ inches from the hind end of same piece is a vertical mortise, 2½ inches long and 1 inch broad, for a post to support the handles—the post is made of strong timber 2½ by 3 inches square, and is 19½ inches long—it has a tenon 3½ long by 2½ broad and 1 inch thick, to fit into the mortise at 1—at 11 inches from the shoulder of the post, commences another mortise (in a different direction of the tenon) 2½ inches deep and 1 inch wide, into which is to be fitted a cross to support the handles, tapered and rounded to go into the handles which fit on both sides of the cross, with ¾ hole about 2 feet 3 inches from their lower ends, and extend back about the same distance, having a round behind the cross to confine them together, at 1 foot 5 inches from the upper ends, and are 1 foot 6 inches wide at the round. The side pieces are 2 feet 6 inches long, and join the middle piece opposite the clevis hole, and are united to the centre piece by a slot 3½ inches broad at one end, and 3 inches the other, 1 inch thick and 18 inches long, the mortise for it to commence 7½ inches from ends of side pieces. The teeth are placed in these at the distance of 5½ inches from the ends as in the number 2. The teeth are made of best bar iron 1½ by ½ inches—the necks are 5 inches long, and are at the shoulder 1½ inches by ¾ square, and are tapered and rounded at the top for a strong screw—in the side pieces they must be placed obliquely that their tracks may be parallel with the middle. They must have strong plates for the bottom, say 4 inch thick, 2½ broad, 4½ long, and well nailed on; the top plates much lighter, and the holes for the teeth in the bottom plates must fit the necks well and of course must be cut into the sides obliquely to give the proper direction as before intimated—the shoulders of the teeth must fit well; with a cold punch, indent the numbers respectively behind the shoulder of each tooth, and on each plate and nut, to distinguish their places.

N. Y. State Agricultural Convention.

Tuesday, February 5, 1839.

The Convention met in the Assembly Chamber at 4 P. M. Judge VAN BERGEN, of Greene county, was called to the chair, and Messrs. BIRD, of Erie, and FAY, of Montgomery, were appointed Secretaries.

On motion of Mr. Buel, of Albany, a committee of eight was appointed to nominate officers of the convention. The committee, after consultation, reported the following:

DERICK SIBLEY, of Monroe, *President*.

JOHN CRARY, of Washington,

CORN'S BERGEN, of Kings,

J. L. VOORHEES, of Onondaga,

NATHAN CLARK, of Washington,

W. A. BIRD, of Erie,

RICHARD KEESE, of Essex,

Z. BARTON STOUT, of Ontario,

Vice-Presidents.

Secretaries.

The counties were called alphabetically, and the gentlemen present from each were desired to hand in their names to the Secretaries. The number of gentlemen who thus identified themselves with the Convention, amounted to between one hundred and eighty and two hundred.

Mr. Buel read a letter from C. L. Fleischmann, a graduate of the Agricultural School of Bavaria, transmitting copies of two memorials which he had presented to Congress, one for the establishment of a National Agricultural School, from a part of the Smithsonian legacy; and the other, giving the history of the sugar beet business down to the present time, and detailing the recent improvements in the manufacture. From the latter document, which was read in Convention, it appears, that by a summary and cheap process of drying, the beet root may be preserved so as to be manufactured at any season; that the process of drying so lessens its volume and weight, that it may be transported at one-fourth of the former expense; that the beet is now made to yield ten per cent of sugar, and that the process of manufacture has been so simplified and cheapened, that refined sugar, equal to our loaf, can be sold for seven and a half cents per pound.

The thanks of the Convention were voted to Mr. Fleischmann for his communication.

On motion of L. F. Allen, a committee, consisting of Messrs. Buel of Albany, Walsh of Rensselaer, Ogden of Chemung, Bergen of Kings, Sacket of Seneca, Patterson of Livingston, Tiffany of Montgomery, and Potter of Dutchess, was appointed to report the business to be presented to the Convention for its consideration.

Mr. L. F. Allen offered a resolution in favor of a memorial to the legislature, requiring assessors in the several towns and cities to ascertain the annual quantity of agricultural products, and the value of our domestic manufactures.

The resolution was debated by Messrs. Allen, Petrie of Herkimer, Chandler of New-York, Clark of Washington, Beardsley of Otsego, and Strong of Monroe; and before the question was taken, the Convention adjourned to 7 o'clock.

7 o'clock, P. M.

Mr. Allen offered the following, as a substitute for the resolution which he had before moved in the Convention; and after some debate, it was adopted.

Resolved, That this Convention respectfully request the Legislature of this State to pass an act making it the duty of the assessors in each city and town in this State annually to ascertain the whole amount of the produce of said city and town, including agricultural, mechanical and manufactures of every description, designating each separately, in proper tables, so that the specific produce of said city or town may be seen by the items respectively; and in order to obtain particularity and uniformity, the Secretary of State be required to make blank tables or forms, such as he may deem proper and necessary, to ascertain the entire produce of the State of every description; that such blanks may be furnished to the clerks of each city and town in order that they may be distributed to such officers whose duty it is to obtain such information; that said officer be required to make due return thereof in such manner as shall be designated by the Legislature, and that the Secretary of State may make due report of all such information so acquired, to the Legislature annually, in the month of January.

Mr. Buel, from the committee appointed to prepare business for the Convention, reported, in part, the following resolutions:—

1. *Resolved*, That in the opinion of this Convention, the culture of silk is an object well worthy of legislative encouragement by the offering of bounties for a limited number of years for its production.

2. *Resolved*, That this Convention regard the culture of the sugar beet, with a view to the production of sugar, as a branch of agriculture, which may be prosecuted to the very great advancement of the prosperity of the State, and recommend it as well entitled to legislative encouragement by the offer of liberal bounties.

3. *Resolved*, That this Convention regard it of very great importance that a brief treatise, containing plain directions for the growing of the mulberry and the management of silk worms, should be prepared and distributed to each of the common schools in this State.

4. *Resolved*, That the introduction into all the common schools of this State, of a short practical treatise containing plain, simple directions for growing the sugar beet, and extracting the sugar therefrom, according to the latest and best process, would in the opinion of this Con-

vention greatly contribute to the general introduction of this new branch of national industry, which promises so greatly to increase the prosperity and promote the welfare of the people of this State.

5. *Resolved*, That this Convention cordially concur in the recommendation of his excellency the Governor, in his annual message to the present Legislature, that publications upon Agriculture, Horticulture and Rural Economy, ought to constitute a part of every common school library.

6. *Resolved*, That this Convention respectfully and earnestly recommend, that the Legislature make provisions for procuring and distributing the above named publications, and that the expense thereof be defrayed out of the fund appropriated for common school libraries.

After some debate, in which several gentlemen took part, the three first resolutions were adopted, when the Convention adjourned till 4 P. M. on Wednesday.

Wednesday, Feb. 6.

The three last resolutions submitted yesterday, by Mr. Buel, were taken up, discussed, and adopted.

Mr. Buel, from the committee appointed to propose business for the Convention, reported the following resolutions.

7. *Resolved*, That as agriculture is the great business of the state—whether we regard the numbers it employs, the magnitude of its products, or the wealth and comfort which it confers—so it ought, at all times, to receive the peculiar and fostering care of the representatives of the people.

8. *Resolved*, That in the opinion of this Convention, agriculture has not hitherto received, from the people's representatives, that stimulus to improvement which sound policy would justify, and which equal justice and the best interests of the state demand.

9. *Resolved*, That the products of our soil may be vastly increased, our revenue augmented, the wealth and comfort of every class of our citizens promoted, and the character and prospects of our state elevated—by a judicious and liberal appropriation of public moneys, to enlighten, to stimulate and to reward, that numerous portion of our fellow-citizens who are employed in the business of agriculture.

10. *Resolved*, That an annual appropriation of twenty-five thousand dollars of public moneys ought to be made, for a term of years, to encourage improvements in agriculture; and that in the opinion of this Convention it will return an annual interest to the treasury, and compound interest to the state.

11. *Resolved*, That the general principles of the bill, to encourage agriculture, reported at the last session of the legislature, by the committee on agriculture, meet the views of this Convention, and that we respectfully request that those principles be adopted by the Legislature now in session.

12. *Resolved*, That the American Institute richly deserves the fostering care and liberal patronage of the Legislature, as an institution which has already done much good to the state, and which is eminently calculated to promote great and rapid improvement in the mechanic and manufacturing arts, and materially to aid in the improvement of agriculture.

13. *Resolved*, That the offer of liberal rewards for the discovery of preventives to the depredations of the grain worm, weevil, Hessian fly, and other insect enemies, which prey upon and seriously injure our farm crops, while it might effect much good, by leading to useful discoveries, could not result in loss to the state, inasmuch as the benefits of the discovery, if any should be made deserving of the rewards, would greatly overbalance their amount.

14. *Resolved*, That the establishment of common school libraries will form an important era in our history, and is eminently calculated to advance us in the march of useful knowledge, to multiply our domestic and social comforts, and to elevate our character—provided that judicious selections of books are made for such libraries—adapted to the capacities and understandings of those whom they are designed to benefit, to the wants and improvement of the various branches of productive industry, and to the promotion of industrious and moral habits in the rising generation;—and that in this view of the subject, the appointment of a competent board to prepare, or cause to be prepared, a selection of books for common school libraries, by the Legislature, at least so far as the public moneys are to be applied to this object, is called for by the highest considerations of public usefulness.

After some discussion, the above resolutions were severally adopted, except the 13th; for which Mr. Clark, of Washington, offered the following substitute, which was adopted in its stead.

Whereas, the growing of wheat is a business of great importance, not only to the agricultural but also to the mercantile, manufacturing, commercial and financial interests of this state:—And whereas, the eastern and northern portions of the state have, for some years past, been visited by the ravages of insects which have destroyed the crops therein, and reduced the farming interests thereof to dependence on their western neighbors for their supplies of flour:—And whereas, this Convention view with alarm, the rapid spread of this evil towards the fine wheat districts of the west:—

Therefore, in hopes to stop the progress of this scourge in our land, this Convention do most earnestly and confidently call upon and request the legislature now in session, to authorize the governor or some other suitable person or persons, to offer a reward to any person or persons who shall discover and make public any remedy

for preventing or counteracting the effects of these insects. Such bounty to be paid out of the treasury of this State.

And whereas, also, a knowledge of the character and habits of these insects may lead to the discovery of a course of husbandry which may avoid the deleterious effects of the labors of these insects,

Therefore, this Convention do also request that the Governor may be further authorized and required to offer a reward for the best treatise on the habits, character and nature of these insects. Such treatise to be submitted to and determined by a board for that purpose to be appointed.

Gen. Clark offered the following resolution, which was adopted, and Messrs. J. B. Wakeman of New-York, C. Bergen and Gen. Johnson of Kings, P. Potter of Dutchess, J. J. Viele of Rensselaer, and A. Van Bergen of Greene, were appointed a committee to prepare the report.

Resolved, That a committee of six members of this Convention be appointed to prepare a Report on the future prospects of Agriculture, Manufactures and the Mechanic Arts in this State, to be illustrated by such statistics as the committee may deem appropriate, and that the Report, when completed, be published in the Cultivator, the Genesee Farmer, and the Journal of the American Institute.

Mr. Walsh of Rensselaer, offered the following resolution, which was adopted, and the committee appointed thereon were Messrs. Duane of Schenectady, Sacket of Seneca, Strong of Monroe, Allen of Erie, and Clark of Washington.

Resolved, That a committee of five be appointed to confer with the members of our Legislature on the expediency of making an appropriation of public moneys in aid of the improvement of our husbandry.

On motion of Mr. Fry of Montgomery,

Resolved, That this Convention recommend the holding of a State Agricultural Convention, in the Capitol, in the city of Albany, on the first Tuesday of February, 1840.

On motion of Mr. Buel,

Resolved, That the thanks of this Convention are due to Charles L. Fleishman, for his communication made to them, of his memorials to Congress, on the subject of a National Agricultural School, and on the history and improvements in the Beet Sugar business; and that a memorial to Congress, expressive of the desire of this Convention to favor the establishment of a National Agricultural School, from a portion of the Smithsonian legacy, be drawn up and signed by the officers of this Convention.

On motion of Mr. Allen,

Resolved, That the thanks of this Convention be given to the presiding officers and Secretaries, for their dignified and able discharge of the duties imposed upon them.

On motion of Mr. Youngs, of Tompkins,

Resolved, That Messrs. Buel, Cheever and Bement be appointed a committee for the express purpose of conferring with the Agricultural Committee of both Houses of the Legislature, upon the subject of the proposed reward, in relation to the wheat insect.

The Convention then adjourned sine die.

During the last day's meeting, a report was read by Mr. Buel, on the subject of the grain worm, and another report, by Judge Cheever, upon the improvement of common roads.

The gentlemen who principally participated in the discussions upon the adoption of the resolutions, were Messrs. Culver, Clark and Richards of Washington, Mack of Tompkins, Allen of Erie, Tiffany of Montgomery, Potter of Dutchess, Buel of Albany, Viele of Rensselaer, and Young of Tompkins.

Report on the Grain-Worm.

The committee designated at the last State Agricultural Convention, to continue the investigation in regard to the grain worm, report—

That since the last meeting it has been discovered, that there are two species of insects which depredate upon the wheat crop, viz. the *Cecydomia tritici* of Kirby, a yellow and apparently inert insect, not to exceed one eighth of an inch in length, and an unnamed creeping thing, three eighths of an inch long. The first, which was noticed in last year's report, preys only upon the grain in its milky state, or upon the pollen of the grain; the latter is said to prey upon the ripened grain, and to be found among it in great quantities when passed through the fanning mill. The first appeared ten to twelve years ago, near the borders of Canada, and has been extending annually since, east, west, north and south. The latter has been seen occasionally for several years, and during the last year has been found in great numbers in the wheat crops of West New-York and Northern Pennsylvania. The former is believed to be far the most injurious. The two insects have been so confounded, in the accounts of their depredations, that it is difficult to discriminate, or to determine the extent to which each has spread among us.

In their former report upon the grain-worm the committee quoted from Kirby, the entomologist, that the insect first makes its appearance "under the form of an orange coloured gnaw, which introducing its long retractile ovipositor into the centre of the corolla, there deposits its eggs. These being hatched, the larvæ, perhaps by eating the pollen, prevent the impregnation of the grain, &c." and the committee added, on the authority of Prof. Low, that the progeny feed upon the young grain; that they are very small, from two to fourteen being sometimes found in one grain; and are distinguished by being of a bright orange colour, that they do not extend beyond the grain in which they are born; that the larvæ, after a period, fall down to the earth, in which they burrow, and remain there until the following summer when they ascend from the earth in the form of the beautiful fly, or gnaw, which has been mentioned. The committee will make a further quotation in

regard to the habits and depredations of the *Cecydomia tritici* from the recent edition of Loudon's Encyclopedia of Agriculture.

"The wheat-fly generally makes its appearance about the end of June; and according to the evidence of Mr. Sheriff they exist about thirty-nine days. The hue of the fly is orange, the wings transparent, and changing colour according to the light in which they are viewed. It lays its eggs within the glumes of the florets, in clusters varying from two to ten, or even to fifteen, and the larvæ feed upon the grain. They are produced from eggs in the course of eight or ten days; they are first perfectly transparent, and assume a yellow colour a few days afterwards; they travel not from one floret to another, and forty-seven have been numbered in one. Occasionally there are found in the same floret, larvæ and a grain which is shrivelled, as if deprived of nourishment; and although the pollen may furnish the larvæ with food in the first instance, they soon crowd around the lower part of the germen, and subsist, in all probability, on the matter destined to form the grain. Mr. Gorrie estimates the loss sustained by the farming interests, in the case of Gowry district alone, by the wheat-fly, at £20,000 in 1827; at £30,000 in 1828; and at £36,000 in 1829."

Such as above described is precisely the appearance of the fly, of its larvæ, and of its habits and depredations, that have fallen under our observation; and although your committee think it has extended as far west as the Genesee valley, they are in doubt whether it has been there identified as the wheat destroyer. So far as our observation has extended, the insect is but seldom found in the wheat ear at harvest. The chairman sowed a sample of early May wheat, received from Gen. Cook, of Virginia, late last fall, and another early this spring. He watched it daily and narrowly on its coming into head. The small fly or gnaw was seen in great numbers upon it before and after sunset. The heads were filled with larvæ, hardly a kernel in fifty escaped; and yet, on gathering a bundle of the straw at maturity, there was hardly found an insect remaining in the wheat heads.

The committee are happy to be able to confirm, in a measure, the truth of the intimation given in their last report, viz. that late sown spring wheat will escape the ravages of the worm. By late sowing they mean from and after the 20th May at Albany—earlier at the south, and later at the north, according to latitude and altitude, or the forwardness of spring vegetation. They give the following in proof of the correctness of this conclusion.

All wheat sown before the tenth of May, that came under their observation last summer, was more or less injured by the worm. All that was sown after the 20th of May escaped its ravages. Of that which was sown between the 10th and the 20th, some escaped injury, and some was considerably injured. One of the committee sowed Italian and tea wheat on the 16th. The fly was seen upon it for a few days after it came into head; though no material injury to the crop was perceptible. An excellent and observing farmer in Wallingford, Vt. nearly 100 miles north of Albany, sowed parcels severally on the 25th of April, on the 19th and on the 25th May. The first sown was virtually destroyed by the worm; the second partially so; while that sown on the 25th May entirely escaped, and was a full crop.

The committee will close their report by quoting from a letter to one of them, from an intelligent Scotch farmer, Mr. Robert Forsyth, residing at Clamplain, the northern town in our state, who seems to be an accurately observing man.

"1833. Sowed my wheat the 7th of April, the first season the worm was discovered in this part.

"1834. Sowed on the 15th April. The worm destroyed more than they did last year.

"1835. Sowed the 7th May. Wheat all destroyed by the worm. Some farmers in the neighborhood burnt their straw on the ground. Reserved an acre and a half, which I did not sow till the 24th of May; which gave a good crop—no worms.

"1836 and 1837. Sowed both years on the 24th of May—no worms.

"1838. Sowed on the 14th and 15th of May. A few worms observed. All wheat that I examined this season, had worms, less or more, in it, some half destroyed. Since 1833 I have examined every patch of wheat in the neighborhood, and some in the adjoining towns, and every patch sown before the 18th May had more or less worms—all sown about the 1st of May, very much destroyed. I have found the same worm in barley, oats and rye, and in herdsgrass (timothy) also.

"In June, 1834, as the ear began to form in the blade, I opened a number every day. I began to do so on a Monday, but I did not note the day of the month, which I think is of no consequence.

"For the first seven days, I could observe nothing in the heads prognosticating the worm.

"Monday the 8th day of observation. The ears nearly all out of the blade—observed nothing.

"Tuesday and Wednesday—nothing.

"Thursday. I thought I observed something like a small speck of fluid matter on some of the grains in the ear.

"Friday. The matter was more visible.

"Saturday. It was very plain to be seen.

"Sabbath day. Appeared yellow, but still a fluid matter.

"Monday. Appearance much as yesterday.

"Tuesday. The matter appeared more thick—colour yellow.

"Wednesday. It appeared like worms, but not very plain.

"Thursday. Perfect worms as I have ever seen since. I counted nine in one grain, and seventy in one ear."

Mr. Forsyth concludes his letter by saying, that the worm falls from the ear to the ground, and comes forth next season a fly, as he never could find any of the worms in the ear after the wheat was ripe.

J. BUEL, Chairman.

Report of the Committee on Common Roads.

The committee, appointed at the last State Agricultural Convention, upon the subject of improving our public highways, respectfully report—

That amongst the various improvements which have been carried forward in this state, that of improving our public highways, has been much overlooked. There are some reasons why this is not much to be regretted. Had their improvement been extensively entered upon, before the construction of our canals or our rail-roads, it is probable that much money would have been expended, which the construction of these works would, to a considerable extent, have rendered unnecessary. For instance, had a McAdam road been made from Albany to Buffalo, to carry freight, as is the case over many parts of England, the construction of the Erie

canal would, for that purpose, mainly have superseded its usefulness.

So, also, had such a road been constructed for the transportation of passengers by post coaches, the rail-roads now completed and going forward in that direction, would have rendered it, to some extent, a useless expenditure. Wherever, therefore, canals have been made, or are to be made, for the transportation of freight, or rail-roads for the transportation of freight and passengers, the improvement of the public highways, for the accommodation of the long freight or the long travel, is of less importance.

As our public highways, so far as they relate to our agricultural interests, are to be connected with our canals, the committee think it not impertinent to refer to that branch of our public improvements. In casting our eyes over the state, it will be found that very much has been done.

It is now 21 years since the commencement of the Erie canal. That important work, extending from high the eastern boundary of the state to the western, has long since been completed.

At Utica, less than 100 miles from Albany, the Chenango canal runs off at right angles, and parallel with the Hudson river, nearly to the line of Pennsylvania.

At Montezuma, 95 miles further west, the Cayuga and Seneca canals bring the borders of Cayuga and Seneca Lakes to canal navigation.

The Crooked Lake canal, passing from Seneca Lake westward to Crooked Lake, opens the shores of the latter to a like navigation.

The Chemung canal, commencing at the southern termination of Seneca Lake, extends canal navigation south to the Chemung river, high the line of Pennsylvania again.

At Rochester, 64 miles further west, the Genesee Valley canal, now constructing, carries canal navigation over to Pennsylvania at Olean.

Again—at the north, the Champlain canal carries a similar navigation to that lake, and to the Canada line.

At Rome, 110 miles from Albany, the Black River canal, now constructing, leaves the Erie canal at right angles, and runs off northerly to Lake Ontario.

At Syracuse, 50 miles further west, the Oswego canal leaves the Erie again, and reaches Lake Ontario in 36 miles, at Oswego.

It may, therefore, be asserted, that there are comparatively but few cultivated farms in this state, whose produce, when made, is more than one day's drive, with a horse team, from canal or tide water. And it is gratifying to know, that these improvements have been so made, and hitherto so conducted, as to furnish the means of their own support, and will ultimately pay the expense of construction, without leaving a debt chargeable upon the taxable property of the state.

It is believed that lines of rail-roads will, at no distant day, be constructed from New-York, crossing the lateral canals, through the southern counties, to Lake Erie.

From New-York, by the way of Albany and the Erie canal to Buffalo.

From Albany and Troy, by way of Saratoga, to Lake Champlain at Whitehall, and probably from Lake Champlain to Ogdensburg.

England has expended her millions of pounds in McAdam and paved roads, for which vast improvement she is often triumphantly referred to. But what she has done in such roads, is now already done and soon to be done for us in the shape of canals and rail-roads.

The improvement of our public highways, therefore, so far as they relate to the transportation of our produce and merchandise, or the accommodation of our public stage travel, will be mainly to connect the improved parts of our country with our canals and rail-roads; very much remains then to be done.

Our public highways are generally laid at an early period in the settlement of the country, when but little attention is paid to their grade. The settler selects the most eligible spot for his house, and then arranges to bring the road to it, and frequently without reference to general direction or elevation. The inconvenience of travelling over crooked and hilly roads follows, and we see it submitted to long after the wealth and business of the country demand their improvement.

The market towns of our farmers are distributed over the state, at the most accessible points on the canals or rail-roads. To these points should our public highways be directed and improved.

The value of the produce of a farm, and of course of the farm itself, so far at least as relates to the surplus, depend upon the price in market, and the expense of placing it there.

The produce which requires a team to travel one day to market, and another to return, is worth to the owner about \$5 per load less on the farm than in market.

If, therefore, by the improvement of his market road, he can carry 24 hundred where he now carries 16, or 30 where he now carries 20, he will save \$2.50 on every load he takes to his market. If his farm produces ten loads, he saves \$25 per year.

The one-half, or even the one-fourth of this sum in a town or county tax, judiciously laid out in the improvement of his market road, would soon place it in a condition to reduce the expense of transportation in the above proportions.

The first step to be taken towards such improvement should be, so to change the line of the road as to bring it as high as possible to a level grade. To go round the hills instead of going over them, for distance is of but little consequence in the transportation of tonnage, compared with elevation. But in many instances, both distance and elevation may be saved by the proper laying of the road.

The laying out or altering of highways, is now confided to a board of commissioners, annually elected in each town. The principal roads of a town cannot be materially changed in their lines, without interfering more or less with the private interests of some of its inhabitants. This would in many instances create an interest which would displace a board of town commissioners, who should fearlessly attempt to discharge their duty in a way best to promote the public interests. Besides, it would be necessary in many, and perhaps most instances, to extend the alterations or the new lines through several towns. In that event, the benefits of the improvements in one town, might be defeated by the refusal of the next to carry them forward.

These objections could be obviated by the appointment of a board of commissioners of highways for each county, or for each senate district, either by the governor and senate, or by election, who should hold their offices for three or five years. It should be their duty, upon the application of a certain

number of freeholders in any town to examine the country where a new road or an alteration of an old one is proposed, and if, in their opinion, the public good required it, they should lay out, or alter any public highway in or through any town or number of towns in their district. And where the benefits of the road are mainly confined to the town, let the expense be assessed upon the town, but where they are extended to the whole county, then upon the county.

Such commissioners should be authorized, if they deem it necessary, to employ suitable engineers to aid in laying out such roads. Such roads, when laid out, should be opened and worked under the direction of the commissioners or one of them. This is an important step towards obtaining good roads, and should be first taken. A suitable sum of money should be raised by the town or county, as the case might be, to be expended in opening such road, and placing it in a good condition for travel.

Let a suitable sum of money be annually raised in each county, and placed in the hands of such commissioners, to be expended in facing such roads, and the other principal market roads in each county, with broken stone or coarse gravel, of sufficient width for one team or more, according to the amount of travel upon the road. Such foundation could be made to the width of eight to ten feet, at a moderate expense, almost any where, and a foundation of that width, well imbedded and shaped to correspond with the adjoining surface of the road, and kept in repair, would always secure a good track for one team, which would be sufficient in most cases. The turning out of wagons to pass each other, would not cut up the parts of the road not imbedded so as to injure its usefulness.

This hard facing should be commenced upon the parts of the road most travelled, which would generally be nearest the market town, and carried back as the means furnished would permit. In this way, every person contributing to the expense of the improvement, would share at once in its benefits.

If the principal roads in each county were placed under the control of such board of commissioners, and an annual fund put in their hands, to be raised by a light tax, and to be expended in laying out, altering, grading, draining and facing the roads in a proper and economical manner, our principal roads would immediately put on a different appearance.

The farmer would find an ample equivalent for his tax, in the reduced expense of taking his produce to market, and every body else in the comfort and convenience of good roads in their various errands of business or pleasure.

The ordinary repairs of the common and more domestic roads of each town, may be left, at least for the present, to the management of the present town commissioners.

The committee take this occasion however, to remark, that the present mode of assessments of labor for the repairs and improvements of our common roads, has, for the amount nominally expended, produced but little beneficial effect. The committee do not believe they exceed the fact, when they say, that one-fourth the amount in cash, expended by skillful and faithful hands, would produce more effect than the present expenditure. And could our farmers feel the force of the maxim that "time is money," it is believed they would cheerfully submit to the payment of the lesser amount in money rather than the larger in labor. But as this branch of the subject—that is to say, the repairs of the less important roads in each town by the town commissioners—is not necessarily connected with what is deemed of the greater importance, to wit—the improvement of our more important and market roads, under the plan above suggested—the measures should be kept distinct. The success of one should not be made to depend upon the fate of the other.

To show the comparative expense of drawing one ton over one mile, at different rates of activity, by a stage coach and by a wagon, the committee give the following table, furnished by John McNeil, Esq. civil engineer, to a committee of the House of Commons of Great-Britain, on the 12th of October, 1831. By this table, it will be seen, that it costs to carry in a wagon, upon an ascent of 1 foot in 10, or 5 degrees and 42 minutes elevation, 52d.07; and upon an acclivity of 1 in 15, or 3 degrees and 40 minutes, 25d.70. Whilst upon an acclivity of 1 in 60, or about 1 degree, it costs 15d.20—that is, it costs about one-half as much to transport over a road of one degree in its acclivities, compared with one of three and a half degrees; and less than one-third upon a road of one degree, to that upon a road of five and a half degrees, and the expense still diminishes as we approach to a level.

Four horse stage coach, average speed ten miles per hour.				Wagon and four horses, average speed two and a half miles per hour.			
Rates of acclivity.	Pence and decimals.			Rates of acclivity.	Pence and decimals.		
1 in 10	d. 77	24		1 in 10	d. 52	07	
1 in 15	57	78		1 in 15	23	70	
1 in 20	50	44		1 in 20	22	83	
1 in 30	41	15		1 in 30	18	55	
1 in 40	41	25		1 in 40	16	76	
1 in 50	39	56		1 in 50	15	82	
1 in 60	38	46		1 in 60	15	20	
1 in 70	37	68		1 in 70	14	77	
1 in 80	37	09		1 in 80	14	45	
1 in 90	36	64		1 in 90	14	22	
1 in 100	36	24		1 in 100	14	04	
1 in 150	35	19		1 in 150	13	46	
1 in 200	34	64		1 in 200	13	18	
1 in 300	34	09		1 in 300	12	91	
1 in 500	33	65		1 in 500	12	69	
1 in 1000	33	32		1 in 1000	12	53	
Horizontal	32	93		Horizontal	12	36	

By this table, it will be seen, that we have no cause to regret that we have made canals instead of stone roads, for the transportation of our freight. The last item in the table shows that it costs 12.36 pence sterling, or about 25 cents, to transport a ton a mile on their stone roads, whilst upon our canals it does not exceed one-sixth that amount.

There are many roads in this state, over which considerable tonnage is carried, and over which post coaches are drawn, whose activity is as high as five degrees. In a large proportion of such instances, a skillful board of commissioners could so lay out a road as to reduce the ascent one-half or two-thirds. The committee believe there are more or less important roads

in almost every county in this state, whose lines may be so improved, and whose beds may, at a moderate expense, be so formed, as to reduce the expense of transportation upon them fifty per cent, and add an equal proportion to their convenience and safety in travelling upon them for business or pleasure.

S. CHEEVER, Chairman.

Albany, February 6, 1839.

N. Y. State Agricultural Society.

The society convened, pursuant to adjournment, at the City Hall, in Albany, on the first Tuesday in February, 1839, ALEX. WALSH, Esq. of Rensselaer, in the chair, and JAMES L'AMOREUX, Esq. Secretary pro tem.

Mr. Buel read a letter from Dr. L. C. Beck, transmitting a resolution of the board of Geology, appointing Messrs. Beck, Emmons and Hall a committee to confer with the State Agricultural Society, in regard to the points especially worthy of attention in the examination of the soils of the state. Whereupon it was

Resolved, That Messrs. Nott, Beckman, Buel, Rotch, Cooper and Spencer, of Madison, be a committee to confer with the state geologists on the matters above referred to.

It was resolved to reduce the annual payments required from the society from two dollars to one dollar.

The annual report of the Treasurer was read and accepted.

Messrs. Buel, Allen, Viele, Van Bergen and Spencer were appointed a committee to report the names of officers of the society for the coming year, who after consultation reported the following, and the report was adopted.

ANTHONY VAN BERGEN, of Greene, President

W. A. S. NORTH, of Schenectady,

J. S. SPENCER, of Madison,

ALEX. WALSH, of Rensselaer,

E. SMITH, of

J. B. NOTT, of Albany,

J. BUEL, Corresponding Secretary,

WILLIAM COOPER, of Albany, Secretary.

C. N. BEMENT, of Albany, Treasurer.

JOHN TOWNSEND, JESSE BUEL, and JAMES L'AMOREUX, of Albany, H. D. GROVE, of Rensselaer, and L. F. ALLEN, of Erie, Executive Committee.

Mr. Buel read a communication from C. L. Fleischmann, accompanied with two memorials to Congress, one for the establishment of a National Agricultural School, and the other containing interesting and valuable data in regard to the culture of the sugar beet, and the manufacture of sugar therefrom.

On motion, it was resolved, that the thanks of the society be returned to Mr. Fleischmann for his communication, and that Messrs. Nott, Buel and Potter be a committee to memorialize Congress for the establishment of a National School of agriculture, from a portion of the Smithsonian legacy.

The society then adjourned to meet in the Assembly Chamber at 4 P. M.

Assembly Chamber, 4 P. M. February 5.

The society met pursuant to adjournment.

The annual address was delivered by JOHN J. VIELE, Esq. of Rensselaer.

Mr. NORTH then presented a report, on farm yard management, as it relates to the wintering of cattle, and the augmentation of manures.

Mr. ROTCH presented a report on the feeding and management of sheep in winter.

Mr. BUEL presented a report on the best vegetable or root crops for feeding cattle, and the best manner of cultivating the same.

Mr. BEMENT presented a report on the most profitable mode of fattening pork and rearing swine.

Mr. ALLEN presented a report on meadow and pasture lands, and the best mode of renovating them, and seeding down lands to grass.

[The address will be published as early as our limits will permit with the aid of an eight page supplement.]

The society then adjourned to meet at the City-Hall at 10 o'clock to-morrow morning.

City-Hall, February, 6th.

Messrs. North, Grove, Fry and Nott, being appointed to designate subjects to be reported upon at the next meeting of the society, reported in due time the following:

1. On the most approved method of stall-feeding oxen and other neat cattle. [Committee Wm. H. Strong and Samuel Clark, of Seneca county.]

2. On converting green crops and other vegetable matters into manure. [Committee Messrs. Ball and Walsh, of Rensselaer.]

3. On the tillage proper for the different kinds of soils—as clay, sand, gravel. [Each soil to form the subject of a distinct report, and J. P. Beckman to report on gravel, A. Van Bergen on clay, and J. Buel on sand.]

4. On the proper time to cut timothy and clover, and the most approved method of curing the same. [Committee, A. Van Bergen and W. Salisbury, of Greene co.]

5. On the effects of lime, and its application to different soils. [Committee Messrs. Buel, Vieleand Mather.]

6. On the best means of eradicating the Canada thistle. [Committee Messrs. North and Duane.]

7. On the manufacture of sugar from beets. [Committee, Messrs. Wardwell and Marshall of Jefferson, and Cheever, of Albany.]

8. On the comparative economy of employing oxen and horses in the usual business of the farm. [Committee, Messrs L. F. & R. L. Allen, of Erie.]

9. On the best mode of cultivating the potato. [Committee, Messrs. Buel and Whiteside.]

10. On the comparative value of potatoes, ruta bagen and mangold wurtzel, as food for cattle and sheep. [Committee, Messrs. Grove and Rotch.]

11. On the value of apples for neat cattle, sheep and hogs. [Committee, Messrs. Grove, Ball and Armstrong.]

On motion of L. F. Allen, Resolved, That J. B. Nott, C. N. Bement and Volkert Bullock, be a committee to examine such agricultural implements as may come under observation, and present their views of the utility of the same at the next annual meeting of the society.

On motion of Mr. Allen, Messrs. Allen, Buel and Nott were appointed a committee to memorialize the legislature, in behalf of this society, to pass a law for the improvement of agriculture, in accordance with the report and bill introduced by the committee on agriculture at the last session.

On motion, it was resolved, That the Hon. Ambrose Spencer, Paraclete Potter, John P. Beekman, Anthony Van Bergen, and J. B. Duane, be appointed a committee to take into consideration, and to report at the next annual meeting of the society, the present state of the silk business in the United States, together with such information and recommendations for public use, as may best, in their judgment, promote its future increase and prosperity.

On motion, it was resolved, unanimously, that the thanks of this society be presented to John J. Viele, Esq. for his interesting and highly valuable address, delivered yesterday before the society in the Assembly Chamber; and that Gen. Clark and Judge L'Amoreux be a committee to present the thanks of the society to Mr. Viele, and to request a copy of the address for publication.

Resolved, That the thanks of the society be given to the presiding officer, for the able and dignified manner in which he has discharged the duties of the chair.

The society then adjourned to the first Tuesday in February, 1840.

On Farm-Yard Management.

The committee to whom was assigned the duty of furnishing an essay on the above subject, have the honor to report as follows.

As the business of farming is one of the utmost importance to the community, it is not only necessary that those engaged in it should be well acquainted with the theory, but also with the minutia of the practice in all its forms, and he who farms it on theoretical principles alone, will in nine cases out of ten be most woefully disappointed in his calculations.

Our subject involves one of the lesser branches of this art, and may be said to be, that sort of management that relates to the business of wintering the different kinds of domestic animals, and the making and preserving the best and largest quantity of manure to be derived from them.

Whatever can contribute to the former, either as to their accommodation or subsistence during the winter, and to the latter as to the quantity and quality of the manure, is of the utmost consequence. Upon the good order and economy of the farm yard and buildings, and the care and attention bestowed, depend in a great measure the health and thriftiness of the stock, and the vigor and productiveness of the land to be manured by them.

To compass these ends, farm buildings should be put up with a view to convenience in foddering out the hay, in accommodating the stock, and in taking care of the manure.

On grazing farms, good roomy sheds, facing the south and east, are absolutely necessary. In proof of which it may be stated, that on farms, not overstocked, and where fodder is abundant, cattle may be wintered as well under open sheds, as they would have been if housed, and better than they would have been, if tied up in the cold open rickety stables of the slovenly farmer.

The yard should be divided into as many compartments as there are different kinds of stock, and different grades of the same stock, to be wintered; that is to say, the young stock should be separated from the old, and the calves from the young stock and yearlings—thus subdividing them, they are not restless, but feed quietly and do better. Sheep, which are kept to some extent by all our farmers, should never be suffered to run with the neat stock, they are liable to be hooked, to lose their wool and be defrauded of their provender. They should have a comfortable shed, furnished with racks, troughs, and a yard proportionate to their number.

The common practice of watering stock at an adjoining pond or brook is not a good one. If there should be no spring in the vicinity which can be brought into the yard, a well should be dug and furnished with a pump, whence the water might be led by conductors into each yard, and the cattle, sheep, &c. might drink as often as they pleased; it is said they will drink half a dozen times a day, when the water is at hand. In going some distance to water a great deal of manure is lost, and in cold boisterous weather they will suffer thirst a long time before they go at all.

To keep the yard dry, and to preserve the liquid manure, there should be a shallow basin in the middle of it, into which all the weeds, parings of the road side, old rubbish, and every thing that will make manure, should be deposited; these being well mixed with the stallings of the cattle, make a strong and rich compost, which answers well on grass lands. By following up this practice during the summer and fall a great amount of good manure may be obtained. A farm yard kept dry and well littered with straw, keeps the stock clean and comfortable, and by absorbing the moisture, is converted into manure, and adds greatly to the dung heap.

As soon as the foddering season arrives, the cattle should be brought up and folded in their respective yards during the day, by which practice lots of manure are saved, which would otherwise be scattered abroad and lost—at night they are tied up, with chains or ropes in a well ventilated but warm stable, the floor of which should have descent enough to carry off the stallings of the animals into the gutter behind them, and be thence carried into a receptacle prepared for it, or if there be no such place, into a heap of manure which may at least retain a share of it.

It is said that neat stock thrive better, and consume less fodder when stabled, than when left to take their chance in

the barn yard. It is certain they do not waste so much. But it is necessary, in order to reap the advantages to be derived from stabling them, that the stables should be warm and the stalls roomy and well bedded with straw, that the curry comb or card be applied every morning, and that a portion of carrots, potatoes or turnips, be allowed them daily, and here let it be remembered, that it is the interest of every farmer to keep his stock in as high condition as possible—the cows will pay for it when the milking season comes, and the young stock will sooner get their growth and be saleable at any time.

It has not in this country been the practice of our farmers, to raise root crops expressly for the purpose of feeding store cattle during the winter. Feeble attempts are only now being made to introduce the cultivation of turnips for sheep, but it is hoped that a new era of better husbandry is beginning to dawn upon us, and that farmers will ere long see the necessity of growing all coarser, but invaluable root crops; the liberal feeding of which during the foddering season, will be sure to keep their stock in a progressive state of improvement, besides lessening the consumption of hay and grain. In wintering young stock and yearlings it is not customary, nor indeed is it necessary to tie them up in stalls; a good warm shed well littered for them to lie under, abundance of good hay, with a little corn or a few roots daily, will keep them in a growing state, and having the run of the yard, will always present a clean healthy appearance.

In bringing calves through the winter it is necessary to be more careful than with any other species of stock. The common practice of giving them a little skimmed milk or whey from the cheese tub, during the summer, with what grass they can get in a paddock, is not enough to put them in a condition to bear our cold winters with impunity. They should be taught to eat a little oil cake, or ship stuffs, or meal of any kind, which will keep them growing and generally healthy. If at any time, they are attacked with purging, which is a common disease with them, as either too much or too little feed will bring it on, a little chalk or ashes mixed with their meal will generally remove it. In the cold wet storms of the fall of the year it is highly proper to house them, the strongest and thickest apart from the weakest; during the winter they should be fed with roots of some kind or other, morning and evening, and at noon with ship stuffs mixed with ground oats. This way of bringing calves through the winter, may be thought to be rather extra and expensive, but it is not so, for when a year old, they will be as large and far more likely than the common half starved animal of twice the age. Upon turning them out to grass in the spring, it will not be advisable to discontinue their accustomed supply of meal or bran on a sudden, it ought to be done gradually, and as their natural food increases, they will learn to do without it.

There are various other small matters, relating to the good order and economy of the farm yard in the disposition of stock, other than neat cattle, which we will mention before quitting this part of the subject: much of what has been said of them will apply to horses, all they require is to be kept clean, well fed and well worked.

Sheep, as has been observed, should have a yard and shed to themselves, and supplied with water. The fashion of compelling them to eat snow in order to quench thirst, is a bad one and ought to be abandoned. Turnips or some other vegetable should be allowed them during the winter, and these roots are particularly useful to them as the lambing season approaches. If a portion of the flock should be weak and sickly they should be removed and put by themselves, and meal or ground oats given them in addition to their ordinary food. The ewes about lambing, should also be separated from the flock; they will be more likely to save their lambs, and if young ewes to own them.

The shed should be well littered with straw and kept dry, and as wet and moisture is deleterious to them, they should always be brought up and housed in stormy weather. Salt should occasionally be given them; as it should also to all the stock indiscriminately.

It will be seen then from what has been said, that all that is necessary to bring a man's stock through the winter in a thriving condition is to keep them clean and warm, and to give them abundance of food and water. In many cases the common mode of wintering stock on dry hay and drier straw may be attributed to ignorance. The great body of our small farmers whose habits and situation in life do not lead them to acquire information, seem to think the great art in wintering their stock, consists in getting them through with the least possible quantity of provender. A saving disposition with a view to present profit appears to animate the whole fraternity, while a liberal expenditure, holding out certain promises of ulterior benefit to them, seems to meet with no favor. Their sole object is to force a living out of the earth some how or other, regardless of the good to be derived from adopting the improvements daily making in every branch of farming. They go on in the old track of their fathers, and transmit the same nearly unchanged to their children.

In the business of saving manures they are equally remiss; the forming of composts, and manufacturing large quantities of manure by mixing the various vegetable matters with topsoils, with lime and with mud, is seldom or ever thought of.

To save the greatest quantity of manure, and to preserve it from losing its strength, it should be protected from the weather. If this cannot be done under cover, it is advisable to stack it, so that it will shed rain, and escape the dissipating effects of the sun and the wind; during frosty weather it will lose none of its virtue, but in the spring the stacks must be attended to, and as the bed of the farm yard feels the influence of the sun and begins to thaw, the manure should be scraped up and added to the stacks; this should never be omitted, otherwise the strength of it runs off or is dissipated, leaving nothing but the unfertilized straw behind. Any means that will save it from being leached by rain should be adopted, and in addition, and to prevent the yards being flooded by heavy rains, the buildings adjacent to it should be furnished with gutters and drains to lead off the water; without these precautions a great share of the manure in every barn yard will be exhausted of its best properties before it is applied to the land. It is not uncommon to hear farmers complain, that manure has little or no effect on their land. And such manure as some of them make, which has lain for months exposed to all the vicissitudes of the weather, can have no effect. Perhaps it is drawn out in the winter, spread abroad in small heaps, and not turned under till nearly all its useful properties are extracted by frequent washings. Now notwithstanding the great value of manures to the farmer, the increasing, preserving and judicious employment of them seems to be a secondary object: considerable quantities are daily lost about

every farm, and what is collected is of little value owing to the manner in which it is treated. No farmer can expect to succeed in his agricultural operations without the aid of good manure and plenty of it, still its augmentation and preservation seems to be little cared for; provided his barn yard is cleaned out once a year, he thinks he has done enough.

It is feared that advances in this branch of farming, in common with others, will not be very rapid until our rulers, influenced by the true principles of a wise political economy, shall see fit to do something for the cause. The rage for speculation and the desire to gather riches too fast, which but lately filled the whole community with golden dreams, has in a measure subsided, and peoples minds now being sobered down to realities of life, they are willing to go to work for a living. It seems then, there never was a time when the fostering care of the government might be extended to the interests of the farming part of the community with a better prospect of advancing the permanent good of the whole than the present.

The art of farming in all its various details, is an employment requiring constant care and attention, as well as judgment in bringing its operations to a successful issue.

It is the great employment of the rank and file of the country, and as such deserves to be considered by our rulers, and were they seriously to entertain the purpose of encouraging it, the zeal of its followers would be sharpened and their efforts redoubled to place this science, to which our country owes so much of its prosperity, upon a proper footing. Committees of agriculture, it is true, are appointed year after year, in our national and state legislatures, to watch over its interests, but what have they done for the cause which feeds and clothes them? The silk business may have been talked over in the former, and the Canada thistle choked in the latter, but no important measure for its encouragement has been passed, at least of late years. Every other great interest of the country seems to have been cared for but the one under consideration; commerce, manufactures, education, civil and military, the fisheries, &c. are all bountifully endowed by government, while for the benefit of the profession, to which the great mass of the people belong, there is no board formed, no school house raised, nor bounty for its amelioration or encouragement offered. Is it neglected by our rulers, because it is less useful or needs less help than others? It has, to be sure, by its own life supporting power, felled the forest of the west, and converted the howling wilderness into fertile fields; but it has not yet succeeded in rendering its independent of other nations, for the very staff of life. The fact alone, that bread stuffs to a large amount were lately imported from abroad, and potatoes are even now being imported from Nova Scotia and elsewhere, would seem to call upon the government in the loudest terms to embrace the patriotic as well as popular measure of encouraging agriculture. Individual enterprise has done much for the cause, by disseminating among us by means of periodicals, the results of experiments and good advice in every department of farming. But these means of information are very limited in their circulation. The attachment to old habits, the dislike to book farming, and the utter ignorance of what is going on in the agricultural world, are also serious drawbacks to improvement; which it is feared, nothing can remedy but the formation of agricultural societies in every county of the state, under the patronage of the government.

Under such a system, the results of good farming and an improved state of culture, would be brought home to every man. Knowledge would be more generally diffused, and great improvements consequently made in every branch of rural economy. Discoveries in agriculture are continually making, and must continue to be made ad infinitum, for no limits can be assigned to the capabilities of the earth, in producing the necessities as well as the luxuries of life. There seems to be no end to the improvement of the qualities and perfections of domestic animals—yet how few of our common farmers are aware of these facts. They know little or nothing of the principles of vegetation, or of the management and effect of the different kinds of manure, nor have they any very clear ideas on the subject of breeding the different kinds of domestic animals.

Until a spirit of emulation is aroused by means of agricultural societies this state of things must continue. To get up such a spirit, has been and is the aim of the agricultural society of this state. It has thus far struggled through a feeble existence, upheld alone by the exertions of a few spirited individuals, headed by the patriotic and intelligent editor of the Cultivator. Under better auspices than we have yet had cause to boast of, the society might flourish and be productive of incalculable good—but unless a favorable ear is turned to our petitions for aid to the cause, there is reason to fear that after this meeting, it will be adjourned to meet no more.

W. AUG. S. NORTH, Chairman

Report on the management of Sheep.

Your committee, on "The feeding and management of sheep in winter," while they are fully aware of the importance of the subject thus brought under their notice, feel, that though they can suggest but little that is new and instructive to the intelligent farmer or flock-master, in the home management of sheep as now practised, yet are inclined to believe there is much, both interesting and useful, which may be gathered from a knowledge of sheep husbandry in other countries, where its vast importance, (forming as it does, in some cases, the very wealth of the nation,) has called to its aid all that education, science and close observation could suggest for its improvements; and there are instances where this valuable amount of intelligence has been practically applied in this state, with a success that warrants your committee in offering some suggestions from the German practice, that may materially improve the winter management of sheep in this state.

The main body of sheep in the northern and middle states produce wool of an improved quality, being more or less mixed with the Merino, or the improved Merino of the Saxony family, and are principally kept for their fleece; the carcasses being a secondary consideration; but within a few years this has become more valuable, from causes which it is not necessary here to examine, as they are self-evident to every observing mind. Your committee would therefore have it understood, that their attention on this occasion has been nearly confined to the management of the Spanish sheep in all its various grades, as found in this country.

Many plans have been recommended, rules have been prescribed, maxims laid down, and the requisite quantities of food stated, for maintaining a sheep in thriving and good condition. But all these can only be relatively understood, for we ought

to take the size of the animal into consideration; and it must be borne in mind, that a large sheep requires more food than a small one, and that a sheep which gives five or six pounds of wool, must consume more than one which gives but three pounds.

These considerations lead to a proposition which has received but little or no attention from the great mass of our farmers who keep sheep, namely:

The influence or effect of feed on the quantity and quality of the wool and carcass.

It may be laid down as a rule, that two pounds of good hay, or its equivalent in grain, roots and straw per day, fed regularly at three feedings, are sufficient for a grown sheep of the Merino family, producing three pounds of fine wool, provided it enters winter quarters healthy and in good condition. For breeding ewes, or a larger race of sheep, this quantity would not be sufficient; and for a race by nature small and weak, it would be more than they require, and if fed to them would greatly diminish the quality of the wool, though it increased its quantity.

Farmers in Germany generally allow their sheep an average of from one and three-fourths to two pounds of hay daily, including the whole flock, and their sheep are vigorous, healthy and in good condition, and attended with the best effect upon the wool. Others allow their sheep one and a half pounds daily, and they do not suffer by this quantity, but are healthy and rather thriving upon it; still they do not yield so much wool, nor is the carcass so heavy; while others, through ill-advised economy, limit their sheep to one and one-fourth pounds of hay daily; but it was found that they sheared from ten to sixteen ounces less of wool per head; that the constitution of the animal could not be matured, and he ultimately became a diminutive and feeble animal. The wool from such sheep is termed "*lungerfine*," and appears to possess a high degree of fineness upon the sheep's back, and is extremely mild and soft to the touch. "But," says Mr. Elsner, a writer on sheep husbandry, "this kind of mildness is an exceptionable as its fineness, both arising from the poverty of the animal, for after shearing and washing, it lessens to an unusual degree in volume." It is deficient in strength, elasticity and the felting properties, and it does not make as perfect and durable a fabric, as it would, had the sheep been kept in a thriving condition. Its intrinsic value, therefore, to the manufacturer, is not so great as its apparent fineness would indicate, and the grower who anticipated a "good clip" of wool from his flock, is very unpleasantly awakened from his dreams, when he finds that they shear much less than he expected; and this we fear is too often the case with many of our economists who undertake to keep flocks of fine woolled sheep.

It is, however, certainly a most erroneous conclusion, that sheep produce an increased or extra quantity of wool in proportion to an increased or extra quantity of feed. "Farmers who were deceived by this theory," says Mr. Elsner, the author above quoted, "have been disappointed; for the increased quantity of wool was scarcely half in proportion to the extra quantity of feed, and the quality was considerably deteriorated." Such is the opinion of one of the most intelligent breeders and close observers of the economy of sheep in Germany. The experience of one of your committee fully goes to confirm the above position. And his experiments, made with great attention and exactness for a series of years, both here and in Germany, enable him confidently to offer the following result: That sheep of good size, superior fineness and thick fleece, when rightly fed and managed, produce on an average two and three-fourths to three pounds of clean wool, washed on the sheep's back. But a flock is only rightly fed and managed, when they are not allowed quite as much as they would eat, thus insuring thriftiness and bodily health. To effect this desirable object, as has been already stated, two pounds of good hay, or its equivalent in grain, roots and straw, per day, are required; whereas, the same sheep, were they allowed as much hay as they could eat, would consume over three pounds or its equivalent in grain, roots and straw. Now in order that the increased or extra quantity of wool be equal to the increased or extra quantity of hay, they ought to shear from four and an eighth to four and a half pounds of wool per head. But this is not the case; the increase seldom amounts to more than 25 instead of 50 per cent. In other words, six pounds of hay fed to three sheep produced from eight and one-fourth to nine pounds, while the same quantity and of the same quality, fed to two sheep daily produced from six and seven-eighths to seven and a half pounds of wool only, leaving a balance in favor of the former of from one and three-eighths to one and a half pounds; an item in the profits of a sheep establishment of some importance, especially where large flocks are kept. But this is not the only disadvantage of high feeding, for while it ruins the natural constitution of the animal, it injures the wool.

Some German writers on sheep husbandry estimate this reduction in quality at ten per cent, and maintain that the greater waste in cleansing it increases the loss to twenty per cent; such wool containing a larger quantity of oily or greasy substances, which go far to make up the increased weight of the fleece. Assuming this to be a correct estimate—and it is believed to be a fair one—it will be found that for an outlay of 50 per cent in extra feed, only five—at the most ten—per cent of wool is obtained in return. It would, however, increase the carcass and the quantity of manure, but this would be done at too great a price. If, however, the sheep were intended for the shambles it would alter the case.

Having considered the influence or effect of feed upon the quality and quantity of the wool, and shown that either extreme, the too little, or the too much, is unprofitable to the wool-grower, your committee will, in the next place, proceed to the consideration of the care and management of sheep during winter.

It may be classed under three heads—Feeding, Watering and Shelter.

Food.—Should be such as to agree with the habits and economy of the sheep, and should contain nourishment and bulk equivalent to two pounds of hay.

The varieties of winter provender, to be considered, are hay of all the cultivated grasses, such as clover, lucerne, &c. &c. hay from natural but dry meadows; sound oat straw, barley, rye and wheat, well cured vetches and pea vines; all kinds of grain, but with the exception of the less healthy rye, roots, such as potatoes, carrots, ruta baga, mangold wurtzel, turnips and the different kinds of beets; all are conducive to the health, prosperity and internal economy of the sheep.

Of the different kinds of hay, white and red clover, sainfoin and timothy, stand first, and seem to be best adapted to

the nature of the sheep; they eat it with great avidity, and with but little abatement in appetite through the whole of a long winter. Of red clover, there are two kinds, the northern and southern—the latter makes much the best hay. Sheep should be made to eat their hay up clean when it is cut at the right time and well cured, and that time is, when clover, lucerne and sainfoin is in full bloom, and timothy when about one-quarter to one-half of the blossom is off. But if the growth is large, lodged or decayed at the bottom, then they should not be forced to eat it clean; but an allowance must be made, as the decayed parts, were they compelled to eat them, would prove hurtful. And if hay is somewhat injured by rains during the process of curing, then again an allowance should be made. Mow burnt or mouldy hay should never be used in the sheep cot, for it causes a general debility of the system, and if continued would ultimately create the rot.

Hay from low land meadows is not so good as that from the uplands, if these can be renovated by occasional ploughing and reseeded, it improves the quality; but in portioning out the quantity of hay to sheep a suitable allowance should be made, and the more of the wild and sour grasses are mixed in with it, the greater should that allowance be.

Hay from wet meadows is not wholesome for sheep, and should never be given them unless from necessity; then double the usual quantity must be allowed. Were they confined to such hay and compelled to eat it nearly or quite clean, it would prove ruinous to the flock.

Hay from meadows that have been very highly enriched by top dressings, afford a luxuriance and rankness of growth possessing a laxative property, and should be dealt out to sheep very cautiously, especially to lambs, and if it is pretty freely salted with a view of preserving it, the greater caution is necessary. Sheep will then eat it greedily, especially if salt has been withheld from them for some length of time, but it is then the more dangerous; as foddering from it a few days in succession, even a few times, creates great thirst. Sheep drink an unusual quantity of water, and scouring is produced, which often proves to be very fatal.

But before entering upon any course of feeding, it is advisable to divide the sheep into different flocks. The breeding ewes into one flock—the wethers into another—and the lambs into a third. From these main divisions, subdivisions may be made as circumstances require, taking care that the individuals composing the different flocks, are as nearly as possible, of equal size and strength; if not, the weaker portion are not apt to get a due share of the fodder. And if there are any individuals that are old, feeble, &c. an invalid department ought to be added, and extra care and attention bestowed upon it.

Having all the different arrangements completed, a careful supervision must be extended over the whole, and the course of treatment regulated by circumstances.

Supposing the breeding ewes to be in good condition, they should receive one and a half pounds of hay and one and a quarter pounds of grain per day, until the rutting season is over; the grain must be then withheld and the flock go through the winter on hay, increasing it to two and a quarter pounds, and an occasional foddering of straw, until within five or six weeks of lambing, when it is decreased a little and roots substituted, commencing by degrees, with one bushel of potatoes, or one bushel and five-eighths of ruta baga to one hundred ewes, and increasing the quantity gradually, of potatoes to three bushels, and of ruta baga to four and three-quarter bushels per day. With this kind of treatment, there will be but very little difficulty in raising lambs.

But if a flock of ewes are not in such condition, and require therefore more feed and better treatment, two pounds of hay and one-quarter of a pound of grain ought to be fed daily until the rutting season is over, when the grain is withdrawn, and roots immediately given, of potatoes two or ruta baga three bushels to a hundred per day, until about lambing time, when that quantity is increased to three bushels of the former, and four and three-quarter bushels of the latter. Both flocks receive a foddering of straw or good corn-fodder, three times a week, generally at night, of which they will eat a considerable portion, and the oats serve for litter.

The three years' old wethers will go through the winter on hay, with an occasional foddering of straw, the oats of which serve them for litter. But the younger wethers require better feed, and being hard to winter, the best of hay should be given them, with some small additions of grain or roots, say one-fifth of a pound of grain, or three-quarters of a pound of potatoes, or one and a quarter pounds of ruta baga.

It being very desirable that the lambs should go through the winter in the best possible condition, much care is required, and having given them a few sheaves of oats every evening, before they were taken out of the pasture, it remains now to be determined the kind and quantity of feed they are to receive. This ought to be the best of hay, and as much of it as they will eat without cloying them. If it is well mixed with white and red clover, and was cut in good season and well cured, it should be eaten up clean. In addition to this, from a quarter to half a bushel of oats per hundred may be their daily allowance, as circumstances require.

The flock of invalids having been placed in the warmest situation, claim every care and attention, and no pains nor trouble must be spared, to carry them through the winter; so that the old ewes shall be enabled to raise a lamb each, which will pay for all the extra expense and trouble the whole has cost.

In view of the foregoing remarks, it becomes necessary to ascertain the feeding properties of grain, roots and straw, as compared with hay, to enable the farmer to make his estimate of the quantity he will require, and to calculate the probable profit or loss of raising certain crops, and feeding them to sheep.

The experiments of Mr. De Raumer, of Kaltwasser, in Silesia, in Germany, go far to establish certain facts on this subject. They are interesting to the inquiring mind, and may be considered as conclusive evidence. Mr. De Raumer is a thorough, practical and scientific farmer, and is considered high authority on agricultural subjects; his farm establishment is very extensive, and his experiments may be relied upon.

REMARKS.

"Potatoes raw and cut into slices, sheep eat with continued good appetite and greediness; they ate seven pounds per head daily, with an allowance of straw. The animals remained healthy and lively, and drank one and a half quarts of water per head daily.

"Mangold wurtzel, sheep eat with less greediness; they ate in duration eight pounds per head daily, straw as with the

potatoes, and drank scarcely one quart of water. The animals remained likewise healthy.

KINDS OF FEED.

	Increase of weight in the live animal.	Produce of wool.	Produce of tallow.
	lbs. oz.	lbs. oz.	lbs. oz.
1000 pounds raw potatoes, with salt,...	46 1/2	6 8 1/2	12 5 1/2
1000 do do without salt,...	44 6 8	10 14 1/2	
1000 do raw mangold wurtzel,...	38 5 3/4	6 5 1/2	
1000 do peas,...	134 11 41 1/2		
1000 do wheat,...	155 13 13 1/2	59 9	
1000 do rye, with salt,...	90 13 14 1/2	35 11 1/2	
1000 do do without salt,...	83 12 10 1/2	33 8 1/2	
1000 do oats,...	146 9 12 1/2	40 8	
1000 do barley,...	136 11 6 1/2	1	
1000 do buckwheat,...	120 10 4 1/2	3 8	
1000 do good hay,...	58 7 10 1/2	12 14	
1000 do hay, with straw, without			
other fodder,...	31 15 8	6 11	
1000 lbs. whiskey still grains or wash,...	35 6 1	4 0	

"Peas, sheep eat very eagerly, two pounds per head per day, drank two to three quarts of water in twenty-four hours, and the animals remained perfectly healthy. In an unsoaked condition, they are hard for sheep to eat and affect their teeth.

"Wheat, sheep eat greedily, two pounds per head daily, and disposes them to great liveliness—drank from two to three quarts of water in twenty-four hours, and remained perfectly healthy.

"Rye, sheep do not eat readily, and does not suit them well, as the above results in the increase of weight show—they drank from two to three quarts of water.

"Barley, sheep ate two and a half pounds per head daily—they thrived upon it, and drank three quarts of water in twenty-four hours.

"Oats, the same as barley.

"Buckwheat, sheep ate with great avidity and with the best results as to health and liveliness. A sheep can eat from three to four pounds, and drink from two and a half to three quarts of water in twenty-four hours.

"Of good hay, a sheep can consume four and a half pounds, and drink from two and a half to three quarts of water in twenty-four hours."

Mr. W. A. Kreisig, a celebrated farmer in East Prussia, considers that one pound of oil-cake meal is as nutritious as two pounds of good hay.

50 lbs. clover hay* equal to 100 lbs. meadow hay;
50 lbs. lucerne and sainfoin, equal to 100 lbs. of meadow hay;
200 lbs. sound and well cured vetches and pea vines to 100 lbs.
300 lbs. sound barley and oat straw, equal to 100 lbs. do.
400 lbs. sound wheat and rye straw, equal to 100 lbs. do.
100 lbs. water turnips, equal to 40 lbs. of potatoes, or 50 lbs. of mangold wurtzel.

Mr. John Philip Wagner says, in his work entitled "Contributions to the Science and Treatment of Wool and Sheep," that "200 pounds of potatoes, 266 pounds of carrots, 350 pounds of ruta baga, and 90 pounds of clover hay, lucerne and sainfoin, are each of them equal to 100 pounds of good hay."

Your committee beg leave further to cite the practice of a few of the most celebrated breeders of sheep in Germany, and firstly that of Mr. Albrecht Thier, of Mogeln, in Prussia.—Potatoes and straw constitute the main feed for his large flock of 1500 during winter. He cuts them into small slices, feeding them alternately with straw. When his pastures, in the fall of the year, begin to fail, he commences feeding potatoes by scattering them in the field in such quantities as he deems sufficient, with the best effect upon their health and condition; his flock fully attests that sheep may be kept principally on roots and straw; and one of your committee, who has been familiar with sheep husbandry, both here and in Germany, confidently believes, from his knowledge on the subject, that the same practice can be profitably applied in our sheep husbandry.

Mr. Block, of Schieraw, in Silesia, Germany, one of the most intelligent and experienced breeders of sheep, keeps a flock of 500, in the following manner. He fodders six times a day.

1st fodder—208 lbs. rye straw, of which they ate ..	52 lbs.
2d fodder—130 lbs. oat do do do ..	97 lbs.
3d fodder—the dry sheep received 160 lbs. of pea vines, of which they ate ..	120 lbs.
the ewes received hay ..	120 lbs.
4th fodder—potatoes mixed with cut straw 750 lbs. rye bran, ..	31 lbs.
oil cake meal, ..	8 lbs.
barley meal, ..	33 lbs.
5th fodder—the ewes received hay, ..	120 lbs.
the wethers rec'd 160 lbs. pea vines, of which they ate ..	120 lbs.
6th & last fodder—208 lbs. of rye and wheat straw, of which they ate ..	52 lbs.

Total amount consumed per day,

The flock was of superior quality, the animals large and always in excellent condition.

Count Magnus, of Eckhardsdorf, gave to 100 breeding ewes, the following per day:

1st fodder—straw and clover hucker,	69 lbs.
2d fodder—the same,	69 lbs.
3d fodder—clover hay,	100 lbs.
4th fodder—potatoes and straw hucker,	72 lbs.
5th fodder—straw,	75 lbs.

Total,

The Electoral flock of Rennsdorf, the private property of the king of Saxony, consisting of 400 breeding ewes and rams, 1,000 pounds of hay in two meals, and at night a foddering of straw, was their daily portion.

Although there might be many other valuable practices of the German shepherds cited, but your committee fearing that they have already exhausted your patience, forbear to enlarge

* Note by the Translator.—The clover in Germany grows finer than the clover in this section of country—it resembles more the Pennsylvania clover—and yields two crops a season. It is cut when in full blow, and well cured in cocks.

upon them, they therefore leave that subject and proceed to the consideration of the second proposition, namely, water.

All domestic animals require water in proportion to the quantity of dry provender they consume, and sheep require particular attention in this respect, as well as some care in regulating the quantity, according to circumstances. Warm springs are always to be preferred, though individuals are frequently to be seen eating snow, which may generally be attributed to fever; and is by no means to be considered a substitute for water.

It is desirable that the flock should be able to drink without wetting their feet or wading into mud, both which are not only very injurious by creating disease in the foot, but deter sheep from drinking as often as inclination prompts.

Protection against the inclemencies of the season is the third consideration in the "feeding and management of sheep in winter." It is almost as necessary to their health and prosperity as food itself, and for this reason, comfortable shelters should be built for them; they not only do much better, but it is a great saving of time, fodder and manure. It will be found that ten tons of hay, fed to sheep that have warm shelter, will go further than twelve tons fed out to them from a stack, and when they have no other protection from the inclemencies of the weather than the side of a stack or fence. Such stables, if properly constructed, will at least pay from 15 to 25 per cent interest annually. This alone should prompt the owner of a flock to provide comfortable lodging places for them. But "a merciful man is merciful to his beast."

Each full grown sheep requires six square feet of room, including racks. The stable should be eight feet high, with windows in the upper part, that may be closed as circumstances require. The floor over head ought to be made tight, that nothing can fall through. They must be well littered, as it will add much to the health and comfort of the animal. If they are not well littered, the dung accumulates, and creates an offensive smell; sheep are then very loth to enter them. It is but too often the case, that when farmers do shelter their sheep, the stables contain a mass of dung, so offensive that the flock would not enter them, and if forced in and confined there, would prove injurious; and hence the prejudice, "that housing sheep is injurious to their health."

Your committee regret, that circumstances over which they had no control, prevented their coming together sufficiently early to do justice to the importance of the subject committed to them.

FRANCIS ROTCH, Chairman.

Report of the Committee on Root Culture.

The committee appointed at the last meeting of the Society, to "report on the best vegetable or root crops for feeding cattle, and the best means of cultivating the same," report as follows:—

"The culture of roots, as firm crops, for feeding and fattening domestic animals, is of such recent introduction, and so limited, among us,—and the few experiments that have been made, to ascertain the relative value of these roots, have been so loosely managed, that the committee do not possess the data that they could desire, to make a satisfactory report, adapted exactly to our practice. But they are nevertheless satisfied, from the numerous experiments which have been made in Europe, in a climate very similar to our own, and from the partial ones which have been made among us, that the culture of roots is destined to effect here, what it has effected elsewhere—a great and salutary change in husbandry,—not only as furnishing the easiest and cheapest means of feeding and fattening domestic animals, but as an important source of fertility to the farm,—and of securing the main point—ultimate profit—to the owner or cultivator.

Under these strong impressions of the advantages of encouraging and extending root culture, your committee proceeded, with the limited means at their command, to fulfil the duties assigned to them by the Society.

The Highland Agricultural Society of Scotland have recently awarded liberal premiums for experiments in fattening neat cattle.—first, upon different kinds of roots, as the potato, turnip and mangold wurtzel;—second, upon raw and cooked food; and third, upon roots entirely, and a mixture of roots, grain, pulse and oil-cake. These experiments have been made with a view of accurately ascertaining the comparative value of each kind of root and other food, and the economy of each mode of feeding it. The experiments have been numerous. They have been made upon ten to thirty head of cattle at a time; and they have been continued from three to six months. The animals were weighed or measured at the time of starting the experiment, at the close of it, and generally at intermediate periods, particularly when the food was varied; and the quantity of roots and other food given was accurately noted,—so that the result has indicated the relative value of each kind of food in the fattening process, and the best mode of feeding it. The committee proceed to state, in a summary way, the results of some of these experiments.

1. The relative value of different roots.

Mr. Howden, with a view to the experiment, set apart the product of two acres of mangold wurtzel, amounting to fifty tons, five acres of Swedish turnips, being 140 tons, and two acres of potatoes, weighing 29 tons 4 cwt. The experiment was made with 21 head of cattle, which received, in addition to the roots, a few distillers grains and a little straw. The following table shows the roots appropriated to each lot, and the monthly increase of the animals in girth. The abstract is made from the prize essays of the society, which cannot now be referred to; but the impression is, that in all the experiments which we quote, the roots fed to each lot was precisely the same in weight. Lot No. 1 was fed from the product of one acre of potatoes, one acre of mangold wurtzel, and one acre of Swedish turnips; No. 2 from one acre of potatoes and two acres of Swedish turnips; and No. 3 from one acre of mangold wurtzel and two acres of Swedish turnips.

Date.	Lot No. 1	Lot No. 2	Lot No. 3
1831, Nov. 30, ..	35ft. 8 inches,	35ft. 9 inches,	35ft. 8 inches,
Dec. 30, ..	36 " 6 "	36 " 7 "	36 " 6 "
1832, Jan. 30, ..	33 " 2 "	33 " 4 "	33 " 2 "
March 1, 39 " 7 "	39 " 8 "	39 " 8 "	39 " 6 "
" 30, 40 " 8 "	40 " 10 "	40 " 10 "	40 " 6 "
April 30, 41 " 4 "	41 " 7 "	41 " 3 "	

Twenty-eight tons of mangold wurtzel and Swedish turnips were withdrawn to feed other stock.

On the 30th January Mr. Howden took a pair of cattle out

of each lot, and fed No. 1 with potatoes and water, No. 2 with Swedish turnips, and No. 3 with mangold wurtzel. The following shows their relative increase in three months.

Date.	Lot 1 Potatoes.	Lot 2 Swed. turnips.	Lot 3 Man. wurtzel.
1832, Jan. 30, ..	10ft. 8 inches,	10ft. 5 inches,	10ft. 4 inches,
April 30, ..	11 " 6 "	11 " 3 "	11 " 2 "

When the cattle were sold, the purchasers agreed that the lot fed on Swedish turnips were from 7s. to 10s. (\$1.54 to \$2.22) a head better than the other lots. The average advance upon the original value of each was £6.12, and the cost of the grains being deducted, there remained £120 (\$532.-80) in return for the eight acres of produce consumed, or \$66.60 for each acre.

From the above statement it would seem there is no great difference in the fattening properties of the three kinds of roots; and that so far as measure or weight is concerned, it matters little which are employed in feeding. We will note here for future reference, the product per acre, of each kind of roots, upon Mr. Howden's ground, adding the product in bushels of 56 lbs.

The potatoes gave 12 tons 4 cwt. equal to 483 bushels.
The mangold wurtzel 25 tons " 1,000 "
The ruta бага 28 tons " 1,120 "

2. The comparative economy of feeding raw or prepared food. In 1833 the society offered a premium of 30 sovereigns for the best report, founded on actual experiment made for that purpose, on a number of oxen or heifers, not fewer than six, the animals to be of the same breed, age and sex, and the term of feeding not less than three months. Several reports were received and published in 1834. From these we abstract the following:

Mr. Walker made his experiment with six two year old heifers, and four two year old steers. Each parcel was divided into two lots, and fed on like food, except that one half received their food raw, and the other half in a steamed or cooked state. The food consisted of Swedish turnips, potatoes and crushed beans, with a little salt and straw. At the end of three months, it was found that the three heifers fed on steamed food had gained 48½ stone, or 679 lbs. and the three heifers fed upon raw food had gained 45½ stone, but the quantity consumed by the first lot exceeded that of the latter.

Cost of feeding on steamed food, £14 1 3
" on raw food, 10 8 7½

The first cost more than the last £3 14 8½
Deducting the first cost, and the price of fattening from the price paid by the butcher, there remained a profit on the three heifers fed with steamed food, of 9s. while the profit on the three fattened with raw food amounted to £3 10s 6d. By a like estimate, the loss on the steers fed with steamed food was 3s. 8d. and the profit on those fed with raw food 10s. 6.

Andrew Howden made a like experiment with 18 cattle, in six lots. Their increase, and expense of keeping for three months, from the 20th March to the 20th June, were as follows:

	Inc. in lbs.	Expense.
Three heifers on raw turnips,	392	£6 13 0
" on steamed turnips,	532	8 13 0
" on raw potatoes,	600	10 7 0
" on steamed potatoes,	572	10 7 0
Three steers on raw potatoes and corn, 722		9 4 0
" on boiled potatoes and corn, 639		9 5 0

John Baswell fed ten horned cattle. The expense of keeping the five cattle on raw food was £32 2 1, while that of the cattle on prepared food was £34 5 10. On being slaughtered the two lots appeared to be very similar, but the particular weight is not mentioned.

3. Relative economy of feeding with turnips alone, or with turnips and other more expensive food.

Robert Stevenson was the successful competitor for the society's premium. He took 18 oxen; their live weight was ascertained at the beginning, at the end, and at intermediate periods of the experiment, which continued 119 days. The cattle were divided into three lots of six beasts each, and a correct account was kept of the weight of food consumed by each lot. Lot 1, was allowed lintseed cake, bruised beans, and bruised oats, in addition to turnips, and during the last 24 days of the experiment, 20 lbs. of potatoes were given per day to each. Lot 2, received the same allowance except the lintseed cake, and half the potatoes. And lot 3, was fed upon turnips alone. The cost of the keep of each animal, during the 119 days, was as follows:

Total cost of feeding one beast of lot 1, £5 2 7
do do do of lot 2, 3 17 0
do do do of lot 3, 1 13 7½

The improvement in live weight was as follows,
First lot increased in weight 102 stone,
Second do do 101 "
Third do do 49 "

Abstracting the cost of feeding from the value of the increased weight, the loss and profit would stand as below:

Loss on feeding lot 1, £3 15 8½
Profit on feeding lot 2, 1 19 3½
Profit on feeding lot 3, 2 11 1

"Thus, when turnips alone were used, a profit of twenty-two per cent was realized; where beans and oats were used along with the turnips, the profit was diminished to eight and a half per cent; but when still more expensive food was tried, that is, grain and lintseed cake, along with turnips and potatoes, a loss was sustained of no less than 12 3.16 per cent."

Lot 1, were the largest oxen. They were fed each with 132 lbs per day of Swedish turnips; lot 2, were fed each with 120 lbs. of the same per day; and lot 3, being the smallest, received but 115 lbs. per day, and for twenty-four days but ninety two pounds.

Lot 1, cost 4.484 pence for every pound of increased live wt.
Lot 2, " 3.92 " " "
Lot 3, " 3.39 " " "

The turnips were estimated at four pence per cwt; the potatoes at 1s. 6d. per cwt; oats and beans at 3s. 6d. per bushel, and lintseed cake at three-fourths of a penny per bushel.

"In conclusion," says Mr. Stevenson, "on this part of the subject, "we give it as our opinion, that whoever feeds cattle on turnips alone, will have no reason, on the score of profit, to regret their not having employed more expensive auxiliaries to hasten the fattening process."

It would seem pretty evident, from the foregoing experi-

ments, that ruta бага and mangold wurtzel are the best root crops for feeding cattle. The profit of cultivating and feeding these roots will be more manifest, if we compare their acreable product with that of hay, potatoes, and the coarse grains which we feed to fattening animals. To enable the committee to make this comparison, they assume the following as the average products of crops, and attach to each of these an estimate of their marketable value. Both the product and the prices will greatly vary; but those assumed are deemed sufficiently correct for comparison.

An acre of grass,	2 tons at \$10,	\$20 00
do corn,	40 bushels at 75 cts.	30 00
do oats,	30 do at 37½ cts.	11 20
do buckwheat, 30 do at 50 cts.		15 00
do potatoes, 150 do at 25 cts.		37 50
do ruta бага, 600 do at 25 cts.		150 00
do man. wurtzel, 600 do at 25 cts.		150 00

Estimating the cost of the roots, in labor, at twenty dollars an acre more than that of the hay, oats and buckwheat, it still leaves a great disparity in the profits; and considering the cost of culture equal to that of Indian corn, there is a manifest advantage in the turnips and mangold wurtzel over the corn crop, as a material for cattle food. Good beef cannot be made on hay alone, in winter; and those who do not feed roots, must resort to some more expensive food, as the meal of Indian corn, oats, buckwheat, &c. The turnips and mangold wurtzel, on the contrary, with the aid of perhaps a little straw, will serve of themselves to feed and fatten animals.

In this matter the chairman can speak from experience. He purchased four oxen a little before Christmas, and kept them till some time in April; after a short time, they ate each two bushels a day of ruta бага;—they would eat very little else, though laid before them, not even lintseed cake. They made good beef, and afforded a handsome profit on the turnips consumed.

If we now assume that an ox will require a quarter of a hundred of hay per diem to keep him in good condition, and that it will require an addition of four quarts of corn meal, or eight quarts of crushed oats or buckwheat, per diem, to fatten him; and if we consider 112 pounds or two bushels of roots equivalent to a ration of hay and grain, then the several crops will feed an animal as below.

One acre of grass, and half an acre of corn will feed 160 days.
One and half acres of mangold wurtzel, or Swedish turnips will feed 450 days.
One acre of grass, and one acre of oats or buckwheat will feed 160 days.
Two acres of Swedish turnips or mangold wurtzel will feed 600 days.
One acre of potatoes will feed 75 days.
One acre of Swedish turnips or mangold wurtzel will feed 300 days.

Making very liberal allowance for the difference in the expense of raising these crops, and for any error the committee may have made in fixing the daily rations, or in the acreable produce of each, they think that no doubt can for a moment be entertained, that the Swedish turnip and the mangold wurtzel are decidedly the best crops that can be raised for feeding and fattening cattle.

The committee have no doubt that the sugar beet and the carrot offer advantages nearly or quite equal to the roots above recommended. Their product and nutrient properties are very similar, and the expense of culture is not very dissimilar. The sugar beet is probably richer in nutriment than the mangold wurtzel, though its product is ordinarily less. The carrot may require more labor in the culture; but it is superior as food, particularly for horses.

Arthur Young highly extols the carrot. Upon the product of three acres of this root, he assures us, he kept for more than five months, twenty work horses, four bullocks, and six milch cows; nor did the animals, during that period, he adds, taste any food, except a little hay. Our enterprising fellow citizen, Col. Meacham, of Oswego, has gone largely into the culture of carrots, as cattle feed, as well as many of his neighbors; and they speak highly of the profits of the culture.

Some highly satisfactory experiments have also been made among us, on a limited scale, in cultivating and feeding the sugar beet. There seems to be little doubt, from the high state of perfection and of profit, which the business has arrived at in France and Germany, that the culture of this beet will soon be extensively gone into in this country, for the purpose of making sugar; and if so, the residuum of the beet will form an important item in the material for fattening cattle.

There are other advantages resulting from root culture which should not be overlooked. It tends greatly to increase the quantity of manure on the farm, to meliorate the texture of the soil, and to furnish excellent alternating crops in convertible husbandry. In selecting for culture, the farmer should choose the roots that are best adapted to his soil. The turnips prefer a dry sandy soil; the beet a clay loam.

As to the best means of cultivating these crops, the committee summarily remark, that the product and profit will materially depend upon the following contingencies: viz, that the soil be dry; that it be rich; that it be deeply worked, that it be well pulverized; and that the after culture be well managed. The implements necessary to cultivate them advantageously, in addition to the plough and harrow, are the drill-barrow and cultivator. The season for sowing the beet is from 10th to the 20th May;—of sowing the Swedish turnip, from the 10th to the 25th June. The drill or row culture is decidedly the best. A detail of the whole process of culture would occupy too much space for this report, and is unnecessary, as these processes are already understood by many, and have been minutely described in the agricultural periodicals of the day. The committee will merely recommend in conclusion, that the roots be always cut, previously to being fed to cattle, for which machines may be procured, at a moderate charge, which will cut a bushel in one to three minutes. If cut, the roots are eaten entirely; if not cut, a portion is apt to be rejected and wasted.

The chairman has received a communication from Col. Meacham, stating his mode of cultivating the carrot, the product, and manner of using the crop. He cultivates them in drills, from 20 to 24 inches apart—he gets one thousand bushels an acre, at an expense of \$25 to \$30; he kept six work horses on them from Nov. 1836 to June 1837, without grain, and they remained in good plight, and performed as well as he ever had horses perform,—and he thinks they are worth double as much for stock as ruta бага.

Upon the subject of the carrot culture, which is perhaps less understood among us than that of the beet and turnip,

the committee will add, that this root thrives best in a sandy loam, light, moist, but not wet, and of great depth; in which the plough, going to the beam, brings to the surface nothing that is not fit for vegetation. The ground should be ploughed immediately preceding the sowing. In Suffolk, Eng. they sow 8 lbs. seed, broadcast, to the acre; and the crop is from 400 to 500 bushels. To horses they are considered superior to any other food. Two bushels of carrots and one of chaff is the per diem allowance to a horse; or 7 bushels of carrots and one bushel of oats is the allowance for a week. They are also profitably fed to all other farm stock. They are raised in Suffolk without dung, at an expense of 9d. (16 cents) per bushel. The yield of the carrot is often 700 to 1000 bushels the acre. The crop is gathered by making a deep furrow near to the drill; when a man seizes, draws the top to the furrow, and pulls them up with great facility.

Another root, the parsnip, is deserving of notice, though its partial culture, hitherto, will hardly entitle it to be classed among field crops. It is believed to be the most nutritious root of any that have been named; is as easy cultivated as the carrot or the beet; and has this advantage over all the others, that its value is not impaired by frost.

From the preceding views, the committee do not hesitate to recommend the extension of root culture, as the most ready means of keeping up the fertility of our farms, and of increasing the profits of their cultivation. J. BUEL, *Chm.*

Report of the Committee on Swine.

Until recently, very little attention has been paid to the breeds of our farm stock; and pigs being considered an inferior species of domestic animals, have been the last to engage the attention of the farmer; and even at the present day in many districts of our country, the old unprofitable kinds of this animal continue to prevail. Indeed, systematic breeding with a view to improve the form and value of the animal, may be said to have hardly commenced among us, the improvements which are perceptible, being rather the fruits of European than American skill.

A common error in this country, has been to regard more the size of the animal, than its symmetry or good points—to estimate a breed according to the great weight which it could be made to attain—rather than the profit with which it would be fitted to the hands of the butcher—the most material point to the farmer. But experience is teaching us a new lesson on this head. Butchers now judge of an animal, not according to its gross weight, but according to the good points, or most valuable meat, which it carries. Breeders have learned to prefer those which, with a given quantity of food, will lay on the most meat. And the consumer has learned, too, that meat that shows the most solid fat, is neither the most healthy, the most savory, nor the most economical. It is the due admixture of fat and lean, or the prevalence of what is termed *fat-lean*—such as is seen in the Devonshire ox and the South Down sheep—that gives the greatest value to the butcher's meat.

It was lately remarked by an eminent breeder of England, Mr. Gray, at an agricultural dinner, that he could feed on an acre of land, a greater number of pounds of mutton, in carcasses from 18 to 20 lbs. per quarter than in carcasses from 28 to 30 lbs. per quarter, and that a quarter of mutton from a sheep of 18 to 20 lbs. weight per qr. is worth more in proportion than from a sheep of 30 lbs. per quarter; and that, consequently, the advantage is on the side of the smaller carcasses. And he assigned this, among other reasons, that in case of drought or scarcity, a small animal can collect as much food as a larger one, and having a smaller carcass it derives more advantage from it; that whilst the larger is losing in condition, the smaller one, if not improving, is remaining stationary; and when the period arrives at which an abundance of food can be obtained, it almost immediately reassumes its position, and is fit to go to market sooner than the larger animal.

These remarks are found to hold good in regard to swine, as well as sheep. The same quantum of food that will give 600 pounds to hogs of a very large breed, will fatten two hogs of 300 pounds each; and the meat of the latter, though not so fat, will be of the better quality. This, and other considerations, have given to what is termed the Berkshire, a decided superiority both in England and America, over most other breeds.

The history of the introduction of this breed among us, was stated in the report upon swine, made at the last meeting of this society. Since that time, the demand for this breed of pigs, from almost every state in the Union, has greatly increased, and prices, in some cases, have almost exceeded exorbitance. Two hundred and fifty, three hundred, and even five hundred dollars a pair, have been paid for them. Nor have they been found deficient in weight, when they have had time to mature their growth. They have been fattened to weigh five, six, and seven hundred pounds; and one was brought to this market last week, from Fulton county, eighteen months old, purchased of Judge Buel a little more than one year ago, which weighed, when dressed, 633 lbs. the carcass of which sold in the market at about \$36.

But it is not the great weight which this breed of hogs are brought to, that gives them their great intrinsic value. They are docile, quiet, come to early maturity, have but little of fat, give a large and excellent ham, one of the most valuable parts, sweet, sound and high flavored pork, and is believed, make as great, if not greater returns for the food consumed, than any other breed amongst us.

It is a matter of congratulation to the admirer of this breed of hogs, that Mr. Lossing of this city, has recently imported three animals of this breed, carefully selected by Mr. Hawes, in England. This, it is hoped, will prevent the necessity of breeding in-and-in, and thus preserve to us the breed in its purity.

In corroboration of the high opinion entertained of this breed of hogs, I will state, that Col. Williams, a spirited and wealthy gentleman, residing on Long-Island, desirous of procuring a superior breed of hogs, wrote to his friend and agent at Liverpool, to procure for him, without regard to price, six pigs of the best breed in England, and to take time and satisfy himself before purchasing. After diligent inquiry, his friend finally settled on the Berkshire, as being considered, taking all things into view, the best and most approved breed, and purchased seven, four males and three females, being the entire litter, (the owner refusing to sell a pair,) and forwarding them to New-York, where they arrived in October last. One of the male pigs will be forwarded to the chairman of this committee in the spring, which will go still further to keep the breed from degenerating.

There are other good breeds of hogs in some sections of the country, each of which have their advocates and admirers, such as the Bedford or Woburn, Mackey, Leicesters, Mocho, China, Ryfield and Grass-breed, as they are termed.

Much loss has been sustained by our farmers, in not keeping up the purity of blood, when possessed: the importance of which has been too little regarded, and before they were aware of it, the good qualities were lost, either by breeding in-and-in, or by crossing with inferior animals.

As regards the choice of hogs for breeding, it is recommended that the male should be small headed, deep and broad in the chest, the chine rather arched, the ribs and barrel well rounded, and the hams falling full down nearly to the hock. He should also be more compact in his form, and rather smaller than the female, for if she be coarse, her progeny will be improved in form and flesh by the cross, and the more roomy she is, the better chance will she afford of producing a large and healthy litter. Respecting her make, no other observation need be made than to choose her of a deep and capacious body with a good appearance, and belonging to as good a race as can be found.

The boar should be well fed, and when young, used sparingly. The sow should also be kept in good condition, so as to support her offspring, but should not be made too fat; for if in very high order she will probably bring but a weak and indifferent litter of pigs. She should not be allowed to farrow in the winter, as the young are then extremely tender, and of all animals the least able to endure cold, and thrive with great difficulty. The months of March and the first of April for the spring, and the months of August and September, for the fall litters, are therefore to be preferred for farrowing.

When breeders possess a good kind of stock, they are too apt to follow it up, by breeding what is termed "in-and-in" with the same family, a practice which is well known cannot be successfully persevered in, for they will become bad feeders, grow delicate, fall off in size, and almost entirely give up breeding; and should they casually have a litter, the pigs will be small, weak and, die almost as soon as they are born.

It not unfrequently happens, that a young sow will devour her young; she should, therefore, be carefully watched, and well fed, when about to farrow: which may be known by her carrying straw in her mouth, about to form her bed. It is a good precaution to sponge the backs of the pigs immediately after they are born, with a strong infusion of aloes, in lukewarm water, as its bitter taste will prevent her from destroying them, care should also be taken before farrowing to separate her from other hogs. She should have a dry and warm place, and be provided with a good supply of straw cut short, to prevent the pigs from getting entangled, in which case she is apt to lay on and kill them. To protect the pigs, an open frame or strong rail on each side of her, elevated a few inches from the ground, under which the pigs may run, has been recommended. Eight or ten days after farrowing, the sow may be allowed to leave her sty for a short time every day, and when the pigs acquire a little strength, they may accompany her. A grass field is the best place, for the herbage improves the sow's milk; the pigs grow faster as well as more healthy, and the sty is rendered more sweet by their absence. If the brood be numerous, they should be lessened, in order to relieve the sow, to eight or at most nine: though from ten to thirteen have been brought up in perfect order, without any apparent injury to the mother. In such cases, however, she should be a strong and healthy animal, as well as supplied with an abundance of the most nutritious food. During the whole period of nursing, the offals of the kitchen or dairy wash, with ship stuffs, ground oats, barley, buckwheat or corn, mixed and given lukewarm, morning and evening, and in the middle of the day, boiled potatoes, beets or carrots, with a little Indian meal or peas and barley ground and mixed, or something equally nutritious.

The young pigs, even while sucklers, should not be left wholly to the nourishment offered by the sow, but should be furnished, two or three times a day, with skim-milk, or buttermilk-whew or pot liquor, made lukewarm, and having a little meal, shorts and boiled roots, mixed up with it; or if this be thought too troublesome, skim-milk, with a small quantity of meal may be left constantly for them, in a part of the sty to which the sow cannot have access. In six or seven weeks, they will generally weigh from thirty to thirty-five pounds and be strong enough to wean. After weaning they should not only be kept dry and clean, but regularly fed.

The importance of the value of swine, with regard to the consuming of the refuse or coarse grain of the farm, and production of manure, is too well known to the farmer to require further notice.

Pigs that come in March, and are intended to be killed in December, should be well fed with the wash of the kitchen and dairy, from the time of weaning, and have a run in good clover where there is plenty of water, and as soon as pens will answer, a small quantity added to their feed daily, and the quantity increased as they increase in size; as feeding and fattening hogs exclusively on corn, at the present high prices, it is evident to every one, would be a losing and ruinous concern. It is therefore recommended, that as soon as the harvesting of potatoes commences, the hogs should be confined and fed with boiled or steamed potatoes, with a few pumpkins, beets or carrots; and peas, oats and buckwheat, ground together, should be well mixed, when hot, and fed lukewarm, regularly three times per day. Great care should be taken not to cloy their appetites, by feeding more than they will eat at each time, and as they advance, it is recommended to feed them a little at a time, several times in the day. To keep them easy and quiet, much depends on regularity, for they keep much better time than many are aware of.

To harden and give solidity to their flesh, about two or three weeks previous to their slaughtering, they should be plentifully fed with corn and pure water, but it would be more economical to have the corn reduced to meal, and if convenient made into mush or pudding, adding a little salt by way of relish. A small quantity of fine charcoal thrown into their pens occasionally, and a small quantity of sulphur, mixed with the food, will add much to their health.

It has been ascertained that one bushel of grain, ground and cooked, will go nearly as far as two, in its whole state. The above remarks will apply equally well to grown hogs.

March pigs, well fattened, weighing from 200 to 250 pounds and killed in December, will command in this market the highest price; but for consumption on the farm, an older and larger hog is recommended, say from 300 to 400 pounds.

Hogs treated as above, if of a good breed, will require from six to eight weeks to fatten them sufficiently for slaughtering. C. N. BEMENT, *Chairman.*

Report on Grasses and Grass Lands.

The committee on laying down grass lands, &c. report:

In the consideration of this subject, but two distinct propositions submit themselves to the reflection of the committee, and first: Our soils in the northern states may be ranged, for the purposes of this essay, into two classes: the tenacious, consisting of clayey, loamy and vegetable; and the silicious or sandy. These are sufficiently well known to every farmer, without analysis, and the committee believe that the long practical experience and observation of their several properties, need only to be here confirmed and reiterated.—The first division of these soils may be termed "natural grass lands;" the second requires the grasses to be frequently cultivated by rotation with other crops; and for the present purpose, may be termed "artificial" soils for grasses.

In the management of the first, the committee feel warranted in the assertion, (and for the truth of this, they appeal to the innumerable instances afforded in all parts of the northern states, when large and productive tracts of meadow and pastures, have been in uninterrupted grass culture for more than half a century,) that so far as has yet been tried, lands may be kept in grass culture for such time as "the memory of man runneth not to the contrary." It is true that these soils, more than others, will not bear continual cropping without occasional nourishment, with impunity; but when once well seeded, by the application of various manures, among which that of the barn yard is the best, and the absence of close after-feeding, they will yield grass, in common parlance, "almost forever."

In many sections of our country, when the vegetable loam preponderates upon a clayey, or a hard-pan subsoil, the ploughing up of meadows and pasture lands for many years is almost destructive to their future production of grass, and it is only by long and regular applications of mixed and rich manures, that they can be brought back to their primitive luxuriance. In proof of this remark, your committee need only refer to some of the most celebrated and productive grazing districts of the state, where the staple grasses of our country have been *always* successfully cultivated. In frequent instances, perhaps in a large majority of cases, lands of this description, which have been cleared within the last fifty years, and now occupied as pasture and meadow, have *never* been ploughed, but remain in the same uneven condition of surface, as they were left, when the harrow followed the first grain and grass seed which were deposited in them after clearing. Great reluctance is usually manifested in disturbing these fields, although somewhat inconvenient to the mower, so well satisfied are their proprietors with their annual crops, as to prefer the old adage, and "let well enough alone."—Your committee have witnessed instances of this description of soils thirty years in grass, and but slightly manured, and under very ordinary cultivation, producing in a common season, two to three tons of the finest hay per acre. Such, however, are extraordinary cases in favorable positions. An ordinary crop may be one to two tons per acre, according to the care and attention of the farmer.

It is true that these lands may become exhausted, and the grass "run out," as the term goes, by bad husbandry and neglect; but the application of yard manures, of new grass seeds and the harrow, will in nearly all instances, restore them to their wonted luxuriance. It need hardly here be stated, that irrigation, draining and other artificial stimulants may be important acquisitions to the productiveness of the meadow and the pasture, but as these always suggest themselves to the judgment and good sense of the cultivator, they do not necessarily come within the province of this discussion. The quantity of seed sown to the acre for either pasture or meadow, should not be less than half a bushel; the kind or variety to depend somewhat upon the soil and its situation. For mowing, the red clover, timothy and red top are the best and most desirable. For pastures, the same, with the addition of white clover or blue or June grass, which are almost everywhere indigenous to the soil, and are among the richest and most nutritious of all our grasses. In fine, the simplest methods compatible with the established rules of good husbandry, your committee believe, with such soils, are the best for their profitable and perpetual cultivation.

In the discussion of the second proposition of the subject, viz. the cultivation of grasses on the lighter soils, your committee will remark, that much will necessarily be left to the judgment of the cultivator, in the time that his lands are to be kept in grass, and his own necessities or requirements, of his soil. As a general rule, if the raising of grass be an object, so long as the lands produce well, either from their natural fertility, or by the application of artificial stimulants, they should not be disturbed; but when the object is a regular rotation, with a strict regard to profit, two to four years is sufficient for the benefit of the land, and as long as such soils will usually yield a grass crop to profit. It is better that the soils be properly prepared, by previous grain or root crops and abundant manuring, harrowing and rolling, for the reception of grass seeds, and that the manures of the farm, save, perhaps, lime, ashes and plaster, be withheld for the use of the current ploughed crops, than to expend them upon the grasses; yet much must depend upon the local position of the ground, the climate, and the dry or moist condition of the soil.

The descriptions of grasses best fitted for these soils are, so far as our experience has yet tested, the red clover and timothy. They are strong, hardy and rich in their properties, universally known and cultivated, and have, in competition with all rival experiments, maintained their reputation and superiority. The proportions of seed to be distributed on the soil, may vary with the requirements of the cultivator, whether for hay or for pasture; but may range from one to two-thirds of either variety; but in no case for *thorough* seeding, should the combined quantity be less than half a bushel to three pecks per acre. The great fault with our farmers is, to not half seed their grass lands, the usual allowance being less than half the quantity recommended. The time and manner of seeding, your committee unhesitatingly recommend, as the earliest spring, on a light loam; or if that be wanting, while the ground is yet unsettled, on a crop of winter grain. If this mode be not practicable, the best other plan would be either by sowing with spring grains, or seeding in the summer, with buckwheat or turnips as the occasion may demand.

The ploughing into the soil, of an occasional grass crop for its renovation, in the absence of stimulating manures, cannot be too highly recommended in the lighter soils; and for sus-

ceeding crops of almost any description, this process is highly advantageous, and may, without hesitation, be always recommended.

As the discussion of this subject at greater length, would lead your committee into minute details, although highly profitable in its results, yet not required by their duties for this occasion, they beg leave to close their communication with the following suggestion to all who would cultivate grasses:

Read attentively, and follow the experimental and practical rules laid down in the agricultural papers of the day, and no intelligent farmer need be at a loss to understand how to best cultivate his lands with grasses.

L. F. ALLEN, Chairman.

EXTRACTS.

[From the Journal of the American Silk Society.]

Address to the People of the United States.

FELLOW CITIZENS—A convention of the friends of the silk culture assembled in Baltimore on the 11th ult. and remained in session for three days. Delegates were present from eleven states, and the District of Columbia, amounting in number to nearly three hundred; and, we believe, that for intelligence and respectability, this assembly would not suffer in comparison, with any body, of equal numbers, which any of the great interests of our country have brought together. Among those assembled were a number who have been practically engaged either in the culture or the manufacture of silk, and they exhibited various specimens of this beautiful and valuable article, which certainly gave fair promise of success to those who shall engage in the business. This convention, in the course of its transactions, appointed the undersigned to address you on the importance of the silk culture; and we now ask your attention while we endeavor to show that you will promote both the interests of the country, and your own individual prosperity, by giving this business a fair trial.

That it is desirable the United States should become a silk growing country, provided it can be done with a fair profit to those engaged in the business, is so evident that little need be said upon the subject. The consumption of this article has been rapidly increasing, particularly within the last few years. In 1821, the amount of the silks imported, as ascertained from the custom-house returns, was not quite \$4,000,000. In 1825, the amount had arisen to nearly \$10,500,000; and in 1837 to over \$20,000,000. It should be borne in mind too, that we import other articles either of necessity or luxury, nearly or quite equivalent in cost to the value of all our exports; and the consequence is, that we must either run in debt for the principal part of the silks we use, or be subject to a constant drain of the precious metals. A system like this cannot be long continued consistently with the prosperity of the country. We must curtail our imports of this article, or we must produce the raw material ourselves, and export it to pay for such of the silk fabrics as we cannot with profit manufacture for ourselves.

We might extend our observations upon this branch of the subject, did we not believe that no further argument is necessary to satisfy you, that we ought to become a silk growing country provided the business will yield a fair profit to those who undertake it. Let us proceed then to this inquiry.

In the first place it may be stated that the climate of our country, and much of the soil, are such that the silk we make is not excelled, either in beauty or strength by that of any country in the world. For the truth of this fact we may appeal to the testimony of every foreigner, capable of judging, who has had an opportunity of testing our silk. Shortly prior to the revolutionary war, no less than 10,000 lbs. of raw silk were sent from the colony of Georgia to London, and its quality was such that it commanded from two to three shilling sterling per pound, more than that of any other country. We are not aware that any considerable quantity has been sent to Europe from states farther north, but European manufacturers have frequently examined it, and they have uniformly given it the character stated above. We can produce then excellent silk, in the various parts of our country, and to any desirable amount. But we are frequently met with the argument, that although our soil and climate are both very favorable to this culture, still labor is so high that we cannot compete with the silk growing countries of Europe and Asia, where the price of labor is extremely low.

Many of you will no doubt recollect that prior to the war 1812, although we were growing large amounts of cotton, we received all our more common and substantial muslins from India. During the war, when our commerce was greatly reduced and the prices of all imported articles became very high, cotton manufactures were commenced in some of the eastern states, and helped to supply the deficiency. When the times of peace again arrived and commerce revived, it was very generally predicted that those manufacturing establishments must be broken up, as the principal articles they then made were such as to bring them into direct competition with those countries where the price of labor was at its lowest point. Was this prediction verified? Far from it. Those manufactures have been greatly extended, and they now give us muslins for less than half the price we formerly paid for those of India, and of a quality greatly superior. In fact we now export such muslins to India, and sell them at a good profit. The high price of labor, in this case, then, has not prevented a successful competition with those countries where the wages are such as scarcely to afford the most meagre subsistence to the population engaged in it. Why then should the high price of labor prevent our raising silk to a good

profit? The fact is, and it may be applied to all cases, that those countries where labor is very low, business is carried on much more sluggishly than where it is high, and their implements are more rude and less adapted to the purpose; so that the same amount expended will not produce more in the former case than in the latter.

But we need not proceed further with general arguments, to prove that the silk culture will be a profitable branch of national industry; facts were elicited during the sittings of the convention, which are more to the purpose than any arguments we could use. The Rev. D. V. McLean, of Freehold, New-Jersey, stated that, in order to try what amount of silk could be made from a given portion of ground, and that too by a person who had no practical knowledge of the business, he planted a small lot of known dimensions, with morus multicaulis, in the spring of the past year, and that he made during the summer, from this lot, at the rate of 510 lbs. of cocoons or 51 lbs. of raw silk per acre. He further stated that, for want of a sufficiency of the silk worms' eggs, he did not feed nearly so large a number as his foliage would have supported. But suppose we take this amount as the average per acre, and it is certainly not too high, and we shall presently find that the business will yield a large profit. The value of the raw silk is not less than \$5 per pound, which will give us \$255 as the gross produce per acre. The gentleman above named did not keep any account of the expense of collecting the leaves, attending to the worms, &c; but, a Mr. Smith, a very respectable farmer of Amherst, Massachusetts, who has been for several years engaged in the culture, stated that he knew from actual experiments, that when he paid the full price for labor it did not cost him more than \$2 per pound for the raw silk he obtained. Other gentlemen present, who had considerable experience in the business, corroborated his statement—suppose, however, that in order to be perfectly safe in our estimate, we add 25 per cent. to this amount making the expense of producing the pound of raw silk \$2.50 or \$127.50 for the 51 lbs. and we have a net profit of \$127.50 per acre. Permit us now to ask you, what branch of your usual business yields a profit any thing like this?

We see then that if the silk culture is undertaken by the farmer as an exclusive business, it will yield him a rich return, even when he has to pay the full price for all the labor employed. But if ever the United States shall become extensively engaged in this branch of industry, and that it will eventually become so engaged we have not the shadow of a doubt, by far the greater portion of the article will be produced by farmers or planters, who are at the same time raising their ordinary crops. Most of the labor can be as well, and as expeditiously, performed by children of from nine to twelve years of age as by robust men; and thus a large proportion of our population, who are consumers but produce nothing, may be most profitably employed during a portion of the year. Every farmer who has a family of children about him, by planting a small portion of his ground with morus multicaulis, may make from 50 to 200 lbs. of raw silk per year, with very little interruption to his other pursuits, and at a very trifling expense; and thus add largely to his yearly income.

But suppose he has no family of children of his own and is obliged to hire those of his poorer neighbors; he is then increasing his own profits by this business, at the same time that he is rescuing these children from the evils of an idle life, and giving them food to eat and raiment to wear.

There is still another view of this subject which is of great importance, particularly to the citizens of many of the Atlantic states. In all of these we find large quantities of land, either naturally poor, or so reduced by culture as to yield no profit to the cultivator. The consequence is, that the people of these states are rapidly emigrating to the more fertile regions of the west to seek a subsistence for themselves and their families; giving cause for fear, that, unless some means can be found to remove this necessity, some of those states will soon be in a measure depopulated. Now it fortunately happens, that poor, sandy, and almost worn-out lands yield the very best of silk; and although the quantity will not be so large as from more fertile lands, the profits will be such as to leave no inducement to the inhabitants to leave the homes of their fathers, in order to raise wheat, corn, tobacco, or cotton, in the fertile valley of the Mississippi.

We think we have, in the few remarks we have made, shown you sufficient inducements to make a fair trial of the silk culture. We might add many more facts if we thought it necessary, but these you will find stated more at large in the periodical publications which are devoted to this cause, and particularly in the "Journal of the American Silk Society," published in Baltimore, and to which we refer you, in the full confidence that you will there find all the directions necessary for propagating the trees, feeding the worms, and reeling the silk, as well as full and authentic intelligence as to the state of the silk market and trade—to be procured by maintaining a regular correspondence with our public functionaries and others, at home and abroad, possessing most experience and having access to the best sources of information. To commence the business upon a moderate scale will involve but a small outlay of capital; and even this will yield as speedy a return, and a much larger one, than you could hope to receive from almost any other investment.

GIDEON B. SMITH,
WM. GIBBONS,
S. B. GUMMERE.

January, 1839.

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ARTICLES	[N. York, Mar. 1.]	Boston, Feb. 27.
Beans, white, bushel,	1 35..	2 00
Beef, per cwt.,	7 00..	8 25
Bacon, western, lb.,	0 12..	0 13
Butter, fresh, lb.,	0 18..	0 25
Cheese, pound,	0 08..	0 10
C. iron, pound,	0 13..	0 18
Flour, best, barrel,	1 20..	1 22
Grain—Wheat, bushel,	8 25..	8 75
Rye, do,	1 12..	1 15
Oats, do,	0 45..	0 50
Corn, do,	0 83..	0 85
Hams, pork, lb.,	0 13..	0 14
Pork, in hog,	10 00..	11 00
Red Clover Seed, bushel,	12 50..	14 50